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The Timber Industries of New Hampshire and Vermont

A Periodic Assessment of Timber Output

Robert L. Nevel, Jr.
Nicolas Engalichev
William C. Gove

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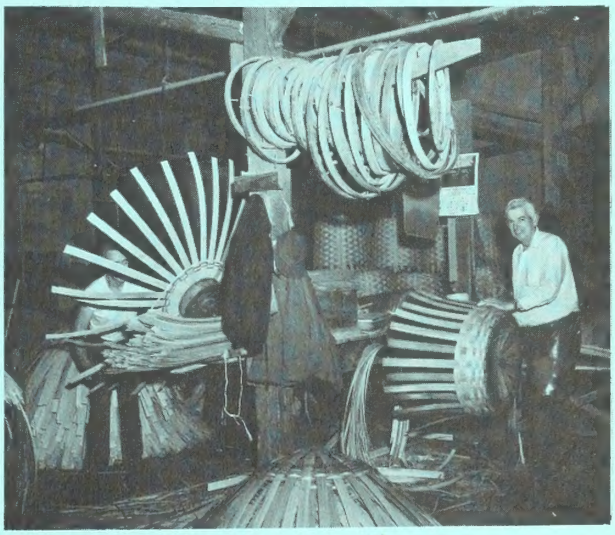

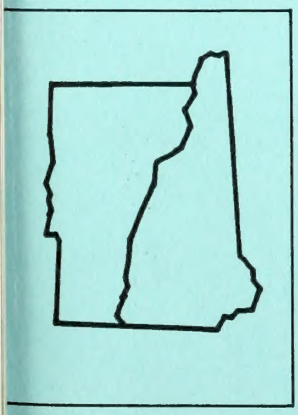

The Authors

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Acknowledgements

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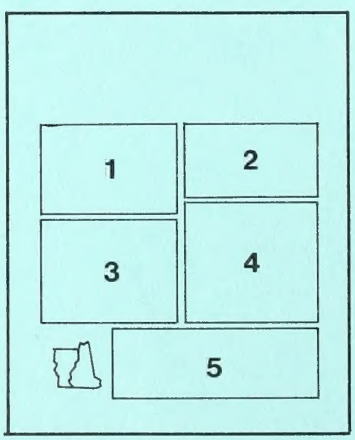
Abstract

This periodic evaluation of statewide industrial timber output is based on canvasses of the primary wood manufacturing plants in New Hampshire and Vermont. The report contains statistics on industrial timber products and plant wood receipts in 1982, and the production and disposition of the manufacturing plant residues that resulted. The 129.4 million cubic feet (3.7 million m^3) of industrial wood produced in New Hampshire and Vermont in 1982 represented a 50 percent increase in production since 1972, when similar information was last collected in detail. Production and receipts of all major industrial roundwood products increased during the period. Other trends in industrial product output and the use of manufacturing residues are presented, along with 25 statistical tables.

Cover photographs

Most of the industrial roundwood timber products harvested in New Hampshire and Vermont still are used to make traditional solid wood products, many for home building or use in the home. Both modern and traditional equipment and methods are employed to harvest the roundwood, to convert it into high-quality products, and to prepare them for market. In the photographs 1, 2, and 5, a modern skidder transports tree-length logs from the woods for conversion into roundwood products; a double-cut bandsaw efficiently cuts softwood sawlogs into lumber; and furniture dimension parts are air-dried at a modern facility before shipment. In photographs 3 and 4, a drawknife is used to hand-peel white pine cabin logs, and ash and oak splints are hand-woven into baskets. (Photographs are courtesy of the Department of Forest Resources, University of New Hampshire and the Vermont Department of Forests, Parks and Recreation).



THE TIMBER INDUSTRIES OF NEW HAMPSHIRE AND VERMONT: A Periodic Assessment of Timber Output

Robert L. Nevel, Jr.

Nicolas Engalichev

William G. Gove

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Highlights

The 1982 timber industry canvasses in New Hampshire and Vermont showed that:

In New Hampshire, since 1972:

* Total timber output increased by 46 percent to 73.2 million cubic feet (2.7 million m^3).

* Sawlog production rose by a third to 242.6 million board feet.

* The total number of operating sawmills decreased by 14 to 128.

* Production of all forms of pulpwood increased. Total pulpwood production rose by 68 percent, reaching nearly 523 thousand cords. Roundwood production rose by 64 percent to almost 330 thousand cords, while the use of chipped residues rose by 75 percent to 193 thousand cords.

* Veneer log production rose over three and one-half times to 7.3 million board feet.

* Combined production of other products such as cabin logs, piling, poles, and stock for dimension, turnings, shingles, and miscellaneous other items rose by nearly two and one-half times to 5.6 million cubic feet.

* Nearly all of the total available wood manufacturing residues were used. The proportion used for fuel nearly doubled.

In Vermont, since 1972:

* Total timber output jumped over one and one-half times to over 56 million cubic feet (1.6 million m^3).

* Sawlog production rose by more than one-fourth to nearly 158 million board feet.

* The total number of operating sawmills increased from 170 to 223.

* Production of all forms of pulpwood more than doubled, reaching over 356 thousand cords. Roundwood production much more than doubled to 301 thousand cords, while the use of chipped residues rose by 76 percent to nearly 55 thousand cords.

* Veneer log production rose by one-half to 10.4 million board feet.

* Combined production of other products such as cabin logs, piling, poles, and stock for dimension, turnings, shingles, and other miscellaneous items increased by over one-sixth to 4.3 million cubic feet.

* Nearly all of the total available wood manufacturing residues, especially the fine materials, were used. The proportion used for fuel more than doubled.

Background

The Forest Service of the U.S. Department of Agriculture conducts periodic forest surveys of all states to provide up-to-date information about the timber and related resources of the Nation. In the 14-state region served by the Northeastern Forest Experiment Station, all states have now been inventoried at least three times. Vermont is the first state in the Northeast to be inventoried for the fourth time. The latest inventory, conducted during 1982 and 1983, included a timber-industry canvass in 1983 to determine the output of timber products and the volume and disposition of primary wood-product plant manufacturing residues in New Hampshire and Vermont for 1982.

This report is a result of a 100 percent canvass of all primary wood-product manufacturers that were operating in the two states in 1982. Pulpwood production data were gathered as part of the Northeastern Station's annual survey of pulpwood producers in the Northeast. In cooperation with the Cooperative Extension Service at the University of New Hampshire and the Vermont Department of Forests and Parks, the Station assembled a list of all known primary wood manufacturing firms in the two states and firms outside these states that might possibly have used industrial roundwood from New Hampshire and Vermont during 1982.

The primary manufacturers in New Hampshire and out-of-state manufacturers were first contacted through a questionnaire mailed by the Northeastern Station. Any nonresponding manufacturer within the state was contacted by Cooperative Extension Service personnel. Nonrespondents outside the state were sent an additional questionnaire or contacted by telephone by Station personnel.
Vermont primary manufacturers and possible out-of-state users of Vermont roundwood were contacted through a questionnaire mailed by the Department of Forests and Parks. The Department modified its annual forest product report to include information required for the Station's canvass. Any nonresponding manufacturer was sent an additional questionnaire or contacted by telephone by Department personnel.

This report deals mainly with statistics for 1982, the year of the most recent inventory, and for 1972, the year of the last previous inventory of the timber resources of New Hampshire and Vermont. Data for these years may not be representative for the various timber industries covered in this report. Documented production statistics for individual timber products, such as pulpwood, for intervening or previous years were included as appropriate for

comparison. Long-term production trends will be disclosed by repeated canvasses in the future. Until a data base is built up over time, the reader is cautioned to use the most recent statistics prudently.

Timber Industry Trends - A Perspective

The cutting and processing of timber in New Hampshire and Vermont have always been important to their economic development. In the late 1600's and 1700's, when the states were being settled, more than 95 percent of the land was forested. Currently, about 80 percent of the land area of New Hampshire and Vermont is covered with forests, which provide timber products to several large timber-using industries and many smaller ones. Throughout the years, the forests provided sources of income and timber products to local landowners and wood-using industries in the region, nation, and other countries. Timber products to make ships, buildings, pulp and paper, wood and paper-based containers, furniture, bobbins and spindles for the textile industry, woodenware, and tools and farm implements have long been vitally important to the development of the states and the use of their timber resource.[1]

Softwood Use Trends

In the past, much of the production of the wood-using industries was from softwoods, especially white pine sawlogs. White pine and other softwoods still make up much of the sawlog production, but more spruce and fir and hardwoods also are being utilized for this purpose.

The most recent trends show increased use of softwoods for sawlogs, veneer logs, and roundwood for reconstituted-wood panel products. Recent strides made by the sawmill industry in New Hampshire and Vermont to gain more of the softwood lumber market resemble the progress that has been made in Maine and other states throughout the Northeast. The softwood lumber industry had been shifting steadily away from the region, and in the past, softwood lumber from outside the region was preferred to local lumber. But in recent years, local lumber has become more acceptable because of improved grading and quality standards, promotional efforts within the region, and rising transportation costs to bring softwood lumber into the region from outside. The lumber industry now has a northeastern lumber-grading association which has helped capture markets previously supplied with southern or western lumber. More pine and other softwood logs are being used locally to make plywood-based products; and the recent start-up of a softwood plywood plant in nearby New York has provided a strong market for these logs. The construction of a wood-based panel plant on the Connecticut River in New Hampshire provided a good market in 1982 for low grade softwoods and aspen. The plant produces oriented-strand board, a type of waferboard from wood chips or "flakes", to compete with plywood and other particleboard construction products. Nearby Maine and Canada have a number of waferboard and plywood plants which have used limited amounts of softwood logs from Vermont and New Hampshire. Regional demand for lumber, plywood, and composition board has increased considerably in recent years, giving the timber-using industries of New Hampshire and Vermont a distinct marketing advantage.

Substantial capital investment has been made in sawmills, dry kilns, and planing mills to increase capacities and manufacture lumber products to strict quality standards (Fig. 1). In Vermont, there has been a resurgence of one-man portable sawmills, using circular and band saws to supply local markets.

Figure 1.--Quality-assurance and consumer acceptance are foremost at this Vermont sawmill where spruce and fir lumber is planed, graded, grade-stamped, and sorted by grade. (Vermont Department of Forests, Parks and Recreation).

Hardwood Use Trends

Trends in the demand for hardwoods reflect the trends experienced by the major users of hardwood roundwood. The New England furniture industry has become more concentrated with fewer, larger plants located in limited areas of

[1] For further background, see: Bones, James T.; Engalichev, Nicholas; Gove, William G. The timber industries of New Hampshire and Vermont. Resour. Bull. NE-35. Upper Darby, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1974. 25 p.

the region as most furniture production has shifted to the South. This has lessened the demand for most northern hardwoods, except red oak and white ash. Recent trends in hardwood sawlog and veneer log consumption show a growing demand for red oak and ash, in both the domestic and export markets, and a declining demand for yellow birch and hard maple. New England red oak is especially desirable for furniture and kitchen cabinets for its attractive color and texture. The beech harvest has been declining and market conditions indicate that this trend will continue. In New Hampshire and Vermont, hardwood trees are also harvested extensively for pulpwood.

Although high-quality hardwood logs have become scarce, the sawmill and veneer industries have adapted to the manufacture and marketing of products from lower grade and smaller logs. Throughout the Northeast, advances in the harvesting and processing of both hardwoods and softwoods have encouraged their use for woodpulp.

Industry Strength

Thus, the present timber-using industries of New Hampshire and Vermont continue to provide a solid industrial base to the region. The industries that remain have increased their capacities and made better use of the timber resource. This has been brought about not only by expansion of present facilities and the use of improved harvesting and manufacturing technologies, but also by adapting to changes in the timber resource, product demand, marketing and transportation methods, and quality control. The industries' adaptability to changing circumstances, and their ability to strengthen old markets while capitalizing on recent economic opportunities indicates their strength and their potential for continued growth, development, and importance.

Industry Outlook

We believe the outlook for the timber industries of New Hampshire and Vermont is very good. With continued growth in the economy, we believe, the more important lumber and pulpwood segments, and the less important veneer and wood-panel segments, will become even more important, while the manufacture of miscellaneous products such as cabin logs, rustic fencing, dimension and turnstock, poles, and specialty items will remain relatively stable or sustain growth. Resources appear to be available in New Hampshire and Vermont to support further expansion of these industries. There appears to be more opportunity for the wood-panel segment if modernization, capital improvements, and presently available new manufacturing technologies -- particle geometry, continuous presses, forming, and press control -- are employed in this segment. The composition of the New Hampshire pulp and paper industry and its product mix of high-quality and specialty products indicate long-term stability for the industry, steady demand for its products, and continued use of low-grade hardwoods and plant residues. The turnery and dimension segment should grow as technology continues developing to utilize the abundant lower quality hardwood resource. No significant change is expected among the remaining miscellaneous segments, such as cabin logs, fencing, shingles, clapboard, or other novelty and specialty items.

The Industrial Timber Harvest

In 1982, more than 129 million cubic feet (3.7 million m^3) of industrial roundwood were cut from the timberlands of New Hampshire and Vermont.[2] This is half again as much as was cut in 1972 for timber-using industries. The proportion from each state remained about the same while the volume cut from each state increased. In both 1972 and 1982, New Hampshire supplied nearly three-fifths of the roundwood cut in the two states. This amounted to 50 million cubic feet in 1972 and 73.2 million cubic feet in 1982 for New Hampshire. Also, during the period, both the proportion and the volume from softwoods increased for both states. In 1972, one-half, (43 million cubic feet) of the combined harvest was from softwoods. In 1982, about 57 percent (73.8 million cubic feet) of the combined roundwood total came from softwoods.

Around the time of the 1972 timber industry survey, the percentage of softwoods harvested in the two states had been decreasing (Tables 11, 14, 20, and 23). Advances in technology in both harvesting and utilization, modernization and increased capacities at sawmills and pulpmills, the development of reconstituted-wood panels, increased use of spruce and fir, and the declining number of hardwood furniture plants in the area have likely contributed to a reversal in the species mix (Fig. 2).

Softwoods accounted for seven-tenths of the gain in the combined harvest for the two states and most of the gains for all products for the two states between 1972 and 1982. The largest softwood volume gains were for pulpwood and sawlogs, 14.4 and 12.9 million cubic feet, respectively. Forty-seven percent of the gain in the softwood harvest went for pulpwood and 42 percent went for sawlogs.

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[2] Timberland, formerly known as commercial forest land, is forest land able to produce crops of more than 20 cubic feet per acre per year of industrial wood and not withdrawn from timber utilization. Definitions of industrial wood and other terms used in this report relating to the timber-using industries are found under Definition of Terms at the end of this paper.

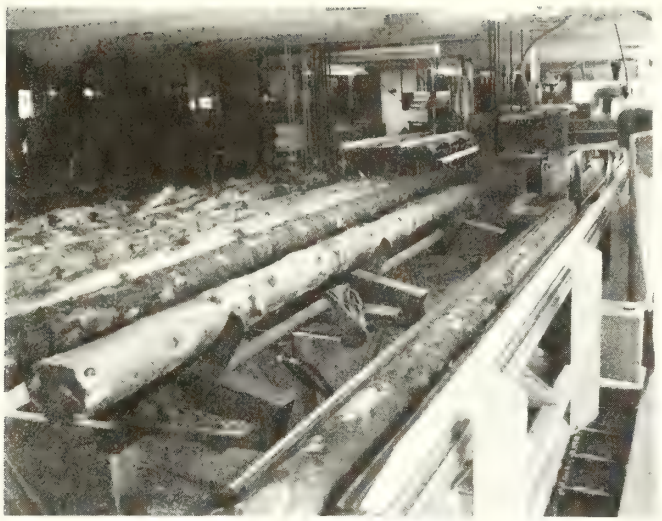

Figure 2.--Better use of the timber resource and sawmilling technology throughout New Hampshire and Vermont have likely contributed to greater softwood usage. Here a modern scrag sawmill utilizes twin circular saws to process small-diameter spruce and fir logs into lumber. (Vermont Department of Forests, Parks and Recreation).

As in 1972, about nine-tenths of the total timber harvested in New Hampshire and Vermont in 1982 was cut into sawlogs and pulpwood, with sawlogs again comprising the bulk of the combined roundwood cut in the two states in 1982. The remaining tenth was used for other products, such as veneer logs and bolts, cabin and tie logs, piling, poles, and stock for fencing, shingles, turned products, panel products, and miscellaneous other products.

Although proportions of the timber product groups have not changed since 1972, changes in processing technology and in the demand for various products have resulted in changes in industrial timber output from New Hampshire and Vermont (Fig. 1 and Tables 8 and 17). Advances in the manufacture of woodpulp, reconstituted-wood panel products, and veneer; increased demand for these products; and lessened demand for some other products have been primarily responsible for these changes.

While the total cubic-footage of sawlogs harvested in these two states increased by 26 percent between 1972 and 1982, the proportion of the sawlog harvest to the total roundwood harvest decreased by nearly a tenth as the cutting of trees into pulpwood nearly doubled. In 1972, pulpwood roundwood used about one-third of the total harvest, compared to nearly three-fifths for the sawlog portion. In 1982,

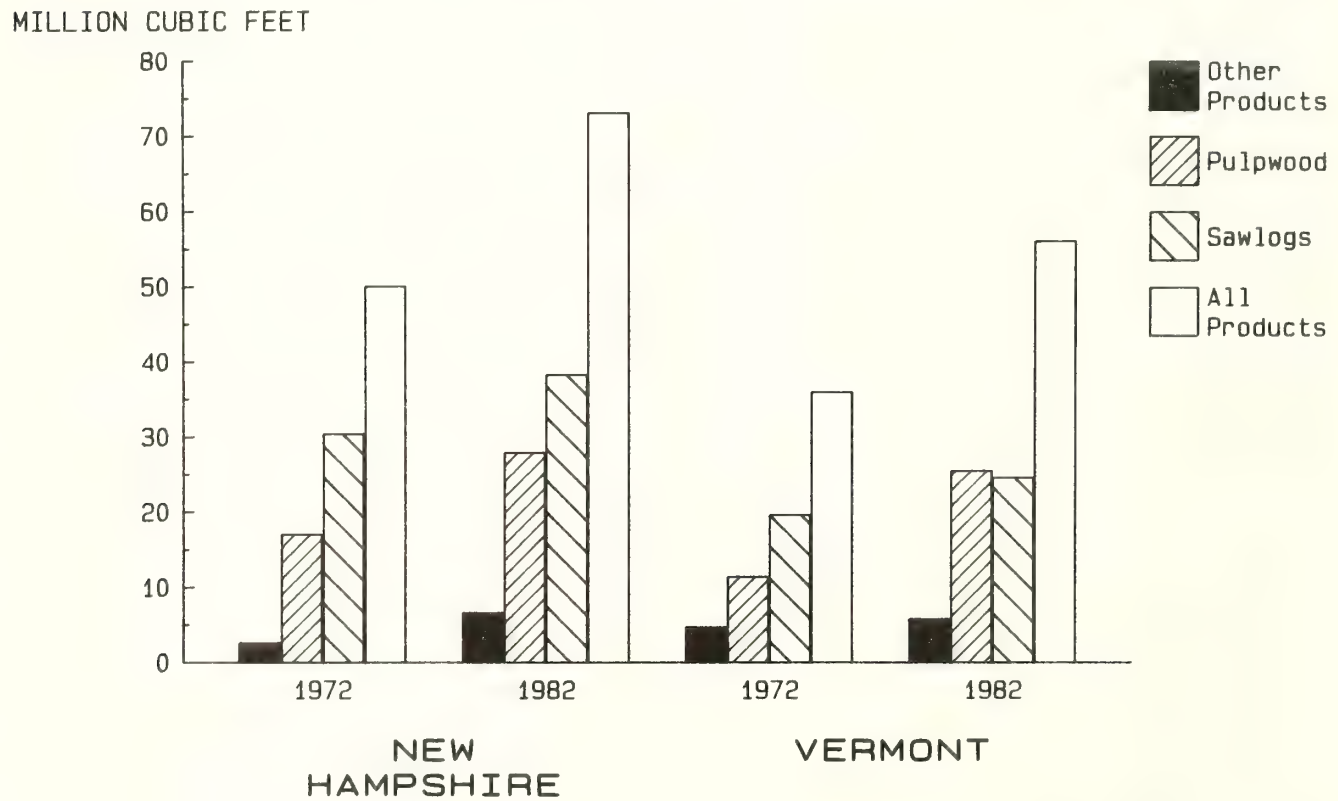

Figure 3.--Industrial timber harvest in New Hampshire and Vermont, by major product, 1972 and 1982.

the combined sawlog harvest for New Hampshire and Vermont comprised 63 million cubic feet, or 49 percent of the total industrial timber harvest for the two states. Since 1972, the combined pulpwood harvest for the two states rose from 28.6 million cubic feet to 53.6 million cubic feet for 41 percent of the total industrial timber harvest. The combined veneer-log production for the two states nearly doubled, from 1.5 million cubic feet in 1972 to 2.7 in 1982. Timber harvested for other products rose by 64 percent during the period, from 6.0 million cubic feet to 9.9, resulting mostly from the installation of the oriented-strand board manufacturing plant in New Hampshire.

In 1982, New Hampshire produced 73.2 million cubic feet of industrial roundwood, compared to the 56.2 million cubic feet from Vermont. This represents a 46-percent gain of 23.0 million cubic feet for New Hampshire and a 56-percent gain of 20.2 million cubic feet for Vermont. Most of the gains in each state resulted from increased sawlog and roundwood pulpwood production from softwood trees. In each state, the softwood pulpwood harvest was nearly 2-1/2 times that in 1972. Softwood sawlog production was up by nearly a third in New Hampshire and up by two-thirds in Vermont. The hardwood pulpwood harvest rose significantly in both states, while the output of hardwood sawlogs rose less than 10 percent in New Hampshire and dropped 6 percent in Vermont. The production of other roundwood products as a whole rose in each state, mostly because of significant increases in the utilization of softwoods for most of these products.

Although sawlogs continue to be a major timber product for both states, the sawlog harvest has been declining in importance, both in relation to total timber harvest and to roundwood pulpwood. The sawlog harvest had ranked first and the pulpwood cut had ranked second for both states in 1972. In 1982, sawlogs accounted for 52 percent and 44 percent of the industrial timber harvests in New Hampshire and Vermont, respectively, compared to 61 and 55 percent in 1972 (Fig. 3 and Tables 8 and 17). The 1982 pulpwood harvest ranked second in volume of timber harvested in New Hampshire (38 percent) and first in Vermont (46 percent). The changes in the importance of the sawlog and pulpwood harvests were brought about by the greatly increased utilization of roundwood unsuitable for sawlogs and the growing importance of woodpulp manufacture in the region. The sawlog harvest for both states rose during the 1972-1982 period, indicating that enough timber was available for conversion into lumber to meet expanding sawmilling needs.

In New Hampshire, softwoods made up nearly four-fifths of the state's sawlog production in 1982, while hardwoods supplied nearly three-fifths of its pulpwood harvest. For Vermont, nearly six-tenths of the sawlogs were from softwoods and just over half of the pulpwood was hardwood.

Most of the timber harvest, and the sawlog and pulpwood harvests, came from the northern counties of both states in 1982 (Fig. 4). The 51-million-cubic-foot harvest from New Hampshire's three northern counties comprised 39 percent of the combined harvest from both states--nearly the same proportion as in 1972, but 18 million cubic feet more volume. Vermont's eight northern counties produced 38 million cubic feet, 29 percent of the combined output.

New Hampshire Timber Harvest

In New Hampshire, industrial roundwood production had dropped by 41 percent, from 85 million cubic feet in 1952 to 50 million cubic feet in 1972. The drop was a result of decreased output of all products.

In the 10 years since 1972, the state's roundwood harvest rose to over 73 million cubic feet. The 46-percent rise came from increased output in all product categories and from both softwoods and hardwoods.

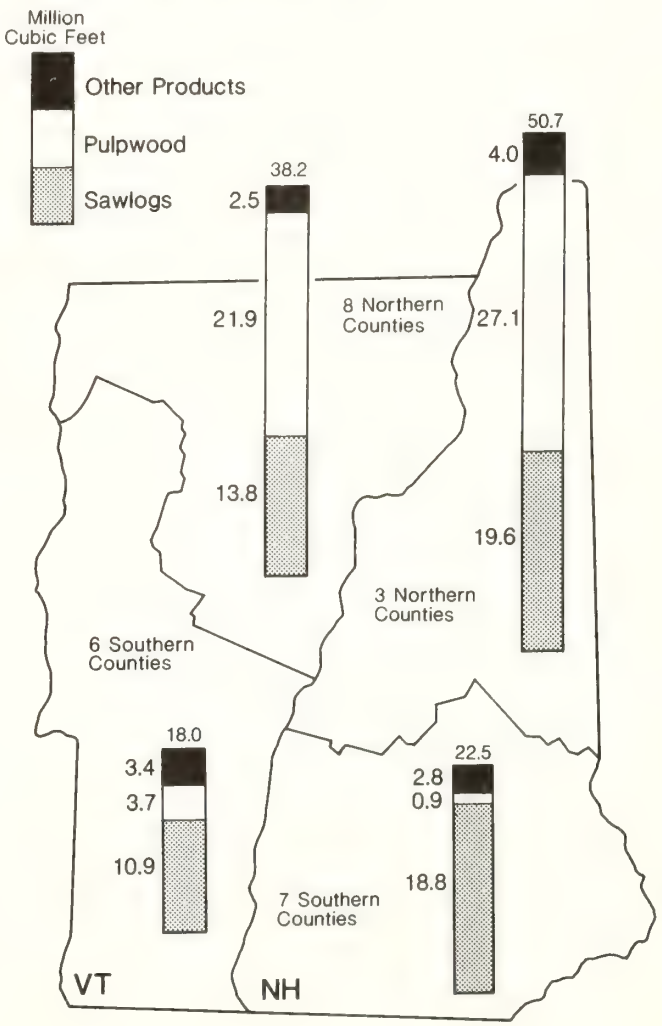

Figure 4.--Harvest of industrial roundwood in New Hampshire and Vermont, by geographic unit and major product, 1982.

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In 1982, as in 1972, more of New Hampshire's timber harvest came from Coos County than from any other county in the state. Nearly 25 million cubic feet of industrial roundwood was produced in Coos County, more than one-third of the state's timber harvest. About two-thirds of the county's harvest went into pulpwood and more than one-fourth was sawlog material. The county pulpwood harvest of 16 million cubic feet exceeded by far that of any other New Hampshire county, and accounted for nearly three-fifths of the pulpwood cut in the state. The county ranked second in sawlog production, with 6.8 million cubic feet, or about 18 percent of the state's sawlog total. More sawlogs (9.1 million cubic feet) were cut in Grafton County, about one-fourth of the state's production. Coos County was also the largest producer of miscellaneous products, such as veneer logs and other types of roundwood.

Vermont Timber Harvest

In Vermont, industrial roundwood production had also dropped in the 20 years after 1952. During that period, the state's timber harvest dropped by nearly half, from 69 million cubic feet to 36 million cubic feet. The decline resulted mostly from reduced sawlog and veneer-log production.

During the last 10 years, the state's timber products output rose to 56 million cubic feet. The 56-percent rise was brought about by increased cutting for all product categories, particularly pulpwood, and increased harvests of both hardwoods and softwoods.

In 1982, as in 1972, more of Vermont's industrial roundwood was produced in Essex County than in any of the state's 13 other counties. Over 15 million cubic feet, or more than a fourth, of the state's total round timber products were cut in the county. Over three-fourths of the county's timber harvest was for pulpwood and most of the balance was in the form of sawlogs. Essex county's pulpwood cut of nearly 12 million cubic feet far exceeded that of any other county, accounting for 45 percent of the state's roundwood pulpwood production. The county ranked first in sawlog production with 3 million cubic feet, followed closely by Windham and Windsor counties. Windsor led the state in the production of other roundwood products, such as cabin and tie logs, veneer logs, poles, and other items.

Mill Characteristics

The combined total of primary wood manufacturing plants that operated in New Hampshire and Vermont rose by 11 percent, from 361 in 1972 to 402 in 1982. The number of sawmills decreased in New Hampshire, primarily from a decline in the number of low-production mills. The number of Vermont sawmills rose during the period, with an increase in most production-size classes. In Vermont, there has been an increase in the number of small portable band and circular sawmills in recent years as availability of these mills has increased. In both states, as in most other states in the Northeast and in most other regions of the country, most of the lumber is produced by high-production mills making more than 1 million board feet annually. Most of the large-production mills saw softwood logs almost exclusively for construction products (Fig. 5).

The total number of other mills rose in New Hampshire, mostly because of an increase in the number of softwood cabin log manufacturers. The numbers of mills making veneer, woodpulp, turned products, and furniture dimension in the state remained the same. In Vermont, the total number of mills other than sawmills decreased. An increase in the number of manufacturers of cabin

Figure 5.--High-production sawmills in New Hampshire and Vermont produce primarily construction products. This Vermont mill uses twin circular saws to process spruce and fir sawlogs. (Vermont Department of Forests, Parks and Recreation).

logs and other softwood products was not sufficient to offset the reduction in mills making turnings, veneer, and dimension parts from hardwoods in the state.

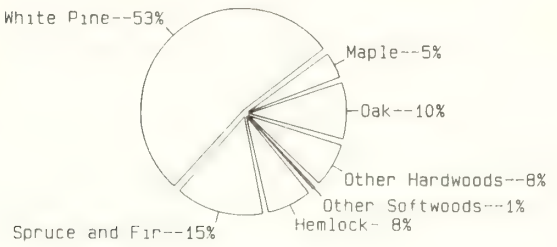
The Lumber and Sawlog Segment

Both sawlog production and receipts in both New Hampshire and Vermont rose substantially between 1972 and 1982. The rises resulted from the increased volumes of both hardwood and, especially, softwood sawlogs cut and retained in each state for use by in-state sawmills. Like 1972, the year 1982 was generally a good year for the sawmill industry. There was heavy demand for both hardwood and softwood lumber products as the economy began to improve over the preceding couple of years. Improved harvesting and manufacturing technology, improved products, expanded and new markets, increased user confidence in well-manufactured northeastern lumber, and the recent establishment of a northeastern lumber manufacturer's association have contributed much to the continued and increased use of lumber products made from local timber. In years past, most of the softwood lumber used in construction in New Hampshire come from the western and southern states and the Lake States. Additionally, the demand and price for hardwood lumber has continued to be favorable since 1972, allowing only a slight reduction in the proportion of hardwood sawlogs in the total sawlog harvest (23 percent in 1982 as compared to 27 percent in 1972). Much of the hardwood roundwood that might previously have been used for other products was sawn into lumber. Although the proportion of the state's hardwood sawlog production to the total sawlog output declined slightly by 4 percent, the volume of hardwoods cut for sawlogs rose by nearly 15 percent, or 7.1 million board feet.

New Hampshire Sawlogs

As in the past, sawlog production in New Hampshire in 1982 was closely related to the manufacture of lumber from white pine and other softwood sawlogs. Nearly four-fifths, or 187 million board feet, of the state's 1982 sawlog production of 242.6 million board feet was from softwoods (Fig. 6). The volume of white pine sawlogs harvested had increased by about 32 million board feet since 1972, although the percentage of the total sawlog production remained at 53 percent. White pine made up about 70 percent of the softwood sawlog harvest in 1982.

The use of spruce and fir has continued to increase over the past 30 years, while the percentage use of hemlock, other softwoods, and hardwoods for sawlogs has remained fairly constant in recent years after undergoing some change between 1952 and 1972 (Table 11). In 1952, spruce and fir made up only 4 percent of the state's sawlogs; by 1972, their percentage use had nearly tripled; and in 1982, these species contributed 15 percent of the total sawlog harvest.



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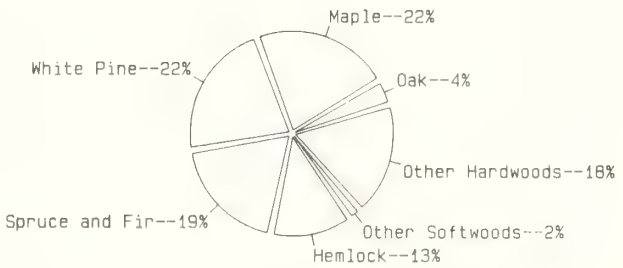


VERMONT

Figure 6.--Sawlog production, by species, in percent, 1982.

Over one-fifth (53 million board feet) of New Hampshire's sawlogs were shipped to manufacturers in other states (Tables 3 and 12). The state was a net exporter of both hardwood and softwood sawlogs--more logs of each species group were sent out of the state than were received from log processors in other states. Overall, over twice as many sawlogs were shipped out of state as entered the state. Most of the 53 million board feet of out-shipments and most of the 24.8 million board feet of in-shipments were from softwoods. Two and one-half times more softwoods were sent out than were received by in-state sawmills. Most of the out-shipments went to Vermont and Quebec, with each receiving more 20 million board feet of New Hampshire's sawlogs. Vermont was New Hampshire's largest trader, supplying 14.3 million board feet, about equally divided between hardwoods and softwoods.

Vermont Sawlogs

In Vermont, as in New Hampshire, the majority of sawlogs cut in 1982 were from softwood trees, but not nearly to the same extent. Historically, sawlog production in Vermont has

swung back and forth between hardwood and softwood dominance. The proportion of softwood and hardwood sawlogs to the state's total sawlog harvest reversed totally between 1972 and 1982; and much of the species mix was altered with the increased acceptance of softwood lumber. In 1972, hardwood sawlogs made up 56 percent of the sawlogs produced in Vermont. In 1982, softwoods made up that portion of the state's 157.9 million-board-foot production (Fig. 6). The proportion of white pine to total harvest remained about the same (22 percent), while the proportion of spruce and fir increased by 7 percent and that for other softwoods rose by 6 percent.

Between 1972 and 1982, the proportion of hard maple dropped by 8 percent. In 1982, the maples as a whole comprised 22 percent--5 percent less than hard maple did by itself 10 years earlier. All other hardwood sawlogs amounted to the same proportion as those cut from white pine or the maples.

Vermont was also a net exporter of sawlogs in 1982. A fourth (38.6 million board feet) of its sawlog production was shipped out of the state--over 5 million board feet more than was received by users within the state. The net export was attributed solely to the softwood export. Three and one-half million board feet less hardwood sawlogs left the state than came into it. Most of the out-shipments were softwoods to Quebec and New Hampshire. New Hampshire, in turn, supplied about six-tenths of the total sawlogs and four-fifths of the softwood sawlogs imported into Vermont.

The Pulpwood Segment

Total pulpwood production and the production of all forms of pulpwood from both hardwoods and softwoods in New Hampshire and Vermont have grown considerably over the past 11 years (Fig. 3 and Tables 8, 14, 17, and 23). The 631,000 cords of roundwood and the 248,000 cord equivalents of residue chips produced in these two states represent a gain of 84 percent from the total 478,000 cords produced in 1972. Between 1972 and 1982, increases of 170,000 cords, 125,000 cords, and 106,000 cord equivalents had occurred in softwood pulpwood, hardwood pulpwood, and chipped residues, respectively. In 1982, the combined volume of softwood pulpwood cut in the two states was nearly 2-1/2 times that harvested in 1972. The production of chippable residues supplied by other primary wood manufacturing plants in the two states for conversion into woodpulp rose by nearly 75 percent during the period. The hardwood pulpwood harvest rose by nearly 60 percent between 1972 and 1982.

Increased availability of timber and chippable material for use as pulpwood, advances in harvesting and pulping technologies, and increased raw material requirements and pulping capacities at neighboring woodpulp mills have contributed significantly to these rises in pulpwood production in New Hampshire and Vermont. Most of the roundwood pulpwood comes from whole-tree chips made in the woods, from small diameter trees, and from the upper bole sections of trees from which higher valued logs and bolts have been removed. The harvesting of sawlogs and veneer and turnery logs and bolts would be unprofitable in many cases if pulpwood were not cut along with them because of the large volume of timber in dense small-diameter stands. The availability of plant residues for use as pulp chips increased because of increased sawlog receipts at sawmills within New Hampshire and Vermont and increased utilization of the residues, such as slabs and edgings, generated at these plants. In most states throughout the Northeast, existing pulpmills have increased their pulping capacities to meet the increased demand for woodpulp. The pulping capacities and raw material requirements at New Hampshire and Vermont mills, however, have remained about the same since 1972.

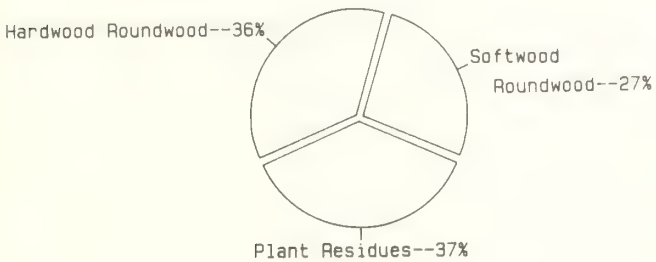
Both New Hampshire and Vermont exported more pulpwood than their pulpmills received in 1982; but the net export was considerably more for Vermont than for New Hampshire. About 19 thousand cords more were shipped out of New Hampshire than were received by the state's mills. Nearly all of the 356,000 cords of pulpwood produced in Vermont in 1982 were sent to neighboring states, and the state's production depends on the requirements of the pulpmills in these other states.

Except for two recessionary periods, all pulpwood production in New Hampshire and Vermont has risen throughout most of the 1972-1982 period. Although New Hampshire's total pulpwood production was more in 1979 than in 1982, total production of pulpwood for both states combined was slightly lower in 1982 than in 1979 because of a slight drop in Vermont's use of both hardwoods and chipped residues. In 1979, the combined total for the two states reached record production of nearly 900,000 cords prior to the economic downturn of 1980 and 1981. The total combined pulpwood production for both states had declined during these two years as it had during a similar economic slowdown in the mid-1970's. The declines were brought about primarily by the decreased availability of chippable residues from sawmills and other primary wood-manufacturing plants, the reduction of woodyard inventories at the pulpmills, decreased demand for woodpulp and paper products, and decreased use of hardwood roundwood.

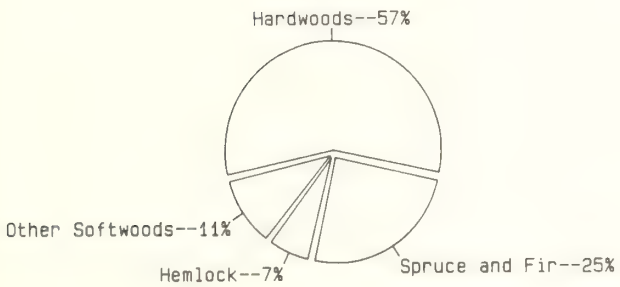
New Hampshire Pulpwood

In New Hampshire, the 1982 pulpwood harvest of nearly 330,000 cords was over half again as much as it was in 1972. About 79,000 cords of the increase were from softwood trees and 50,000 cords were from hardwoods. The softwood pulpwood harvest more than doubled. The hardwood production rose by 37 percent.

The volume of residues made into pulp chips rose by nearly 75 percent--an increase of 83,000 cords--to bring the state's total pulpwood production for 1982 to 523,000 cords. Nearly three-quarters of the total pulpwood production was from hardwood roundwood and plant residues (Fig. 7), and about equally divided between the two. Most of the residues were from softwood material. In 1982, the proportion of the softwood roundwood harvest in total production was up by 7 percent over 1972. The proportion of hardwood roundwood had dropped by 8 percent; and the relation of plant residues to total production remained about the same.



BY SOURCE



BY SPECIES
(Roundwood)

Figure 7.--New Hampshire pulpwood production, in percent, by source and species, 1982.

Softwoods comprised 43 percent of New Hampshire's pulpwood harvest in 1982--up by 11 percent over 1972. The proportion of spruce and fir remained about the same; the harvest of other softwoods accounted for softwoods' greater share. Nearly three-fourths of the softwood roundwood and over half of the plant residues produced in New Hampshire were sent to pulpmills outside the state. Most of the hardwood roundwood and hardwood residues were retained within the state. Nearly another 150,000 cords of hardwood roundwood was received by New Hampshire mills from log processors outside the state.

Thirty years ago, most of the pulpwood used in the state was softwood, preferred by the sulfite pulpmills. Today, the state's three remaining pulpmills use semichemical or sulfate processes to make woodpulp from hardwood material (Fig. 8). These trends were present in 1972 and will likely continue as long as the existing mills in northern New England use their present pulping processes.

Figure 8.--Hardwood material, mostly roundwood, is used to make woodpulp at New Hampshire's pulpmills. Mountains of hardwood bolts dwarf the operations of this receiving yard at a northern New Hampshire mill. (University of New Hampshire Department of Forest Resources).

Vermont Pulpwood

Over the years, pulpwood production trends in Vermont have been similar to those in New Hampshire. Recently, the production of chippable residues increased by the same proportion (about 75 percent between 1972 and 1982), but the pulpwood harvest increased faster --in terms of both volume and percentage increases.

The 1982 Vermont pulpwood harvest of 301,000 cords was more than double the roundwood production of 1972. Between 1972 and 1982, the harvest of softwoods nearly tripled and the hardwood cut nearly doubled. About 91,000 cords and about 75,000 cords more of softwoods and hardwoods, respectively, were harvested in 1982 than in 1972. The production of chippable residues used to make woodpulp rose by nearly 24,000 cords.

Pulp chips from residues made up 16 percent of Vermont's pulpwood production (Fig. 9)--less than half of the residues portion for New Hampshire. Vermont had less available chippable residues and more of what it did have went unused or for fuel (Table 6). The remainder of the pulpwood production was about equally divided between hardwood and softwood roundwood. Between 1972 and 1982, the proportion of softwood roundwood had risen by 7

percent as the proportions of the hardwood harvest and the residues used dropped by 4 percent and 3 percent, respectively.

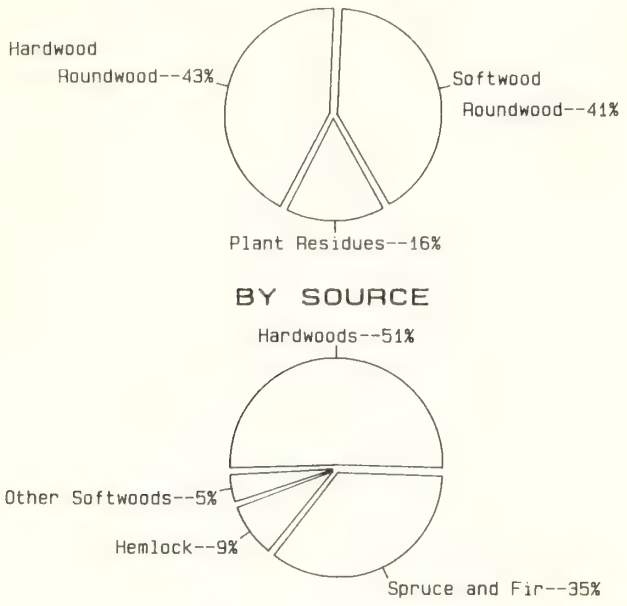


Figure 9.--Vermont pulpwood production, in percent, by source and species, 1982.

As in New Hampshire, the use of softwoods other than spruce and fir accounted for most of the rise; the proportion of spruce and fir remained about the same. Hardwood material made up about three-fifths of the chipped residue production.

Other Segments of the Timber Industry

The Veneer Log and Bolt Segment

In 1982, 17.7 million board feet of veneer logs and bolts were produced in New Hampshire and Vermont. This was nearly twice the board-foot volume cut in 1972, principally because New Hampshire's veneer-log harvest had risen by over three and one-half times.

The production increase in New Hampshire rose from 2 million board feet to 7.3 million board feet. In 1972, most of the state's veneer logs and bolts were shipped out of state, primarily to Vermont. In 1982, most of the state's production again was shipped outside, but considerably more logs were sent to Vermont than in 1972; and almost as many went to Massachusetts. More important, nearly as many logs were retained in New Hampshire in 1982 as were sent out in 1972. Of New Hampshire's 1982 veneer log harvest, 2.9 million board feet and 2.6 million board feet were shipped to Vermont and Massachusetts, respectively. A small amount went to Quebec; the balance was used by New Hampshire's specialty veneer mill.

Vermont's veneer log production rose by one-half during the period from 7.0 million board feet to 10.4 million board feet. Although one less mill was operating in 1982 than in 1972, the three mills remaining used 60 percent more logs in 1982. These mills received 6 million board feet more of veneer logs and bolts than were produced in the state--continuing to keep Vermont a large net importer of veneer logs and bolts. Thirty percent and 43 percent of the 9.6 million board feet of veneer logs and bolts received from out-of-state log processors came from New Hampshire and New York, respectively. New York was the largest trader of veneer-quality roundwood--receiving nearly 3 million board feet from Vermont. Most of the logs supplied to New York were pine that went to a recently constructed softwood plywood mill near the Vermont border. Vermont's mills used only hardwood roundwood--preferably red oak, yellow birch, and white birch--to make mostly interior and exterior veneer-based products, including large industrial reels, plywood, paneling, and face veneer. These three species made up 41 percent of Vermont's 1982 veneer-log production and 68 percent of the mills' receipts.

The Turnery and Dimension Bolt Segment

In 1982, there were numerous primary wood manufacturing plants in New Hampshire and Vermont that made a variety of turned and dimension products from hardwood bolts. The bolts were routed, turned, sawn, or otherwise shaped into blanks for such finished items as bobbins, bowls, dowels, pegs, spindles, tool handles, chair rungs, or squares for the furniture industry. Nearly 3 million cubic feet of bolts from New Hampshire and over 1 million cubic feet of bolts from Vermont were cut for these uses in 1982. This represented a tenth of New Hampshire's hardwood harvest and about 5 percent of the hardwood roundwood cut in Vermont. Except for about 1 million cubic feet of boltwood shipped from New Hampshire to Massachusetts mills, most of the boltwood harvest in New Hampshire and Vermont was used within the state or shipped between the two states. Most of the bolts were used for handles or furniture parts.

Before World War II, when New England was the center of the textile industry, there were many bobbin and spindle mills in New Hampshire and Vermont. As the textile industry moved south, all but two bobbin mills in Vermont and one in New Hampshire ceased operations. Thirty years ago there were 31 mills in the two states; 10 years ago there were five.

In 1982, few manufacturers remained from a once-thriving novelty and specialty products industry. In Vermont, there were two manufacturers of turned wooden bowls and one maker of baskets made from wood splints.

Figure 10.--Small volumes of roundwood from New Hampshire and Vermont are made into a number of miscellaneous construction products, such as cabin logs, rustic fencing, poles, and shingles. (Vermont Department of Forests, Parks and Recreation).

The Miscellaneous Construction-Products Segment

The bulk of the remaining 1982 roundwood production in New Hampshire and Vermont was used to make a variety of construction products other than lumber or plywood (Fig. 10). These include cabin logs, clapboard, fencing, piling, poles, shingles, landscape ties, and reconstituted-wood panel products. The production of roundwood from these two states for this segment had risen considerably since 1972, primarily as a result of the recent construction of a reconstituted-wood panel plant in New Hampshire. Roundwood harvests for all other construction products had declined since 1972 with their reduced demand.

One of the more important of the remaining construction-related roundwood products is precut cabin logs to make vacation and second homes (Fig. 11). Nearly 2 million board feet of cabin logs were cut in New Hampshire and nearly 3 million board feet were produced in Vermont. About half of New Hampshire's production was sent to Vermont's three high-production logcabin manufacturers. Most of the remainder was used by New Hampshire's largest log cabin manufacturer and several cabin log manufacturers in the state. Most of the cabin logs were made from white pine, with some spruce.

A limited volume of roundwood was harvested for Vermont's two clapboard mills. Additional roundwood was flat-sawn into clap board at lumber-producing sawmills. Most of the clapboards produced by this once-thriving segment of the wood-products industry were used for period house reproduction and restoration.

The relatively new reconstituted-wood panel industry has done much to make use of much of the Northeast's underutilized timber resource of aspen and dead and dying fir and to provide impetus to the region's timber-using industry.[3] About 2.3 million cubic feet of roundwood was cut in New Hampshire for the New Hampshire oriented strand-board plant. An additional 1.7 million cubic feet were harvested in Vermont for the mill, with more being supplied by log processors in neighboring states. Canada and Maine had similar plants making reconstituted-wood panel products which also drew roundwood from these two states.

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[3] Irland, Lloyd C. An update on reconstituted wood panels in New England. Unpublished paper presented at the Northeast fall section meeting of the Forest Products Research Society, West Lebanon, NH, November 3, 1982. Also see: Irland, Lloyd C. Reconstituted wood panel products outlook for New England and Maine. Augusta, ME: Maine State Planning Office, Executive Department; November, 1981, 31 p.

Figure 11.--Vermont's high-production log cabin manufacturers use most of the cabin logs produced in New Hampshire and Vermont. Here, one uses a four-man crew to erect a cabin on a prepared foundation in less than 4 days. (Vermont Department of Forests, Parks and Recreation).

The Use of Manufacturing Residues

Primary wood manufacturing residues, such as bark, chips, slabs, sawdust, and the like, have increased in utility and value throughout the Northeast over the years. Economic and environmental considerations have discouraged wood-product manufacturers from dumping or burning their residues in the open, and have encouraged the plants to use the residues or make them available for others to use.

Most of the residues generated by the primary manufacturing plants, such as sawmills, veneer mills, and turneries, in New Hampshire and Vermont are used. These plants and many other industrial facilities in these two states have been using the residue materials as readily available, dependable, alternative raw material sources for woodpulp and energy (Fig. 12). Gardeners, farmers, and landowners have been using much of the bark and smaller woody material for mulch, livestock bedding, and other similar purposes. Homeowners also have been using the larger material to heat their houses.

Figure 12.--A modern dry kiln at a New Hamsphire sawmill uses an enclosed conveyor to carry wood residues to fuel the boiler system. (University of New Hampshire Department of Forest Resources).

Volume and Proportion of Residue Use

In 1982, nearly 44 million cubic feet (1.2 million m^3) of residues were generated by the New Hampshire and Vermont primary wood manufacturers, excluding the woodpulp industry (Table 6). Nearly 37 million cubic feet (1 million m^3), or 84 percent, of this total was woody material and about 6.9 million cubic feet (198 thousand m^3) was bark. Over 24 million cubic feet (684 thousand m^3) was coarse residue suitable for conversion into chips for wood pulp and fiber products.

Since 1972, the primary wood manufacturers and other wood residue users in New Hampshire and Vermont have made considerably more use of the residues generated in roundwood conversion. In 1972, the relation of residues used to the total residues available averaged 85 percent for the two states.

Between the states, the use of bark was 65 percent; coarse residue and fine residue usage were each 90 percent. In 1982, there was a very heavy demand for all types of residues, both the bark and the woody material, from the two states (Fig. 13). Very little of either residue type went unused in either state (Tables 6, 15, and 25) -- 98 percent of the residues generated by the two states were recovered and used. Of the two states, New Hampshire was somewhat more successful in the recovery of bark, coarse residues, and total residues.

Both the volume and the proportion of residues used in the two states for fuel have risen substantially over the years. In 1972, only 3.1 million cubic feet, or 13 percent, of the wood-industry residues were used for fuel. By 1982, the volume of the residues used for this purpose had nearly tripled, to 8.7 million cubic feet -- a fifth of the residue used. Nearly half of the remaining 34.5 million cubic feet of residues used in 1982 were made into woodpulp; the balance went for agricultural uses.

Between states, most of New Hampshire's residues went for fiber, while more of Vermont's was used for agricultural purposes:

General Analysis of Residue Use

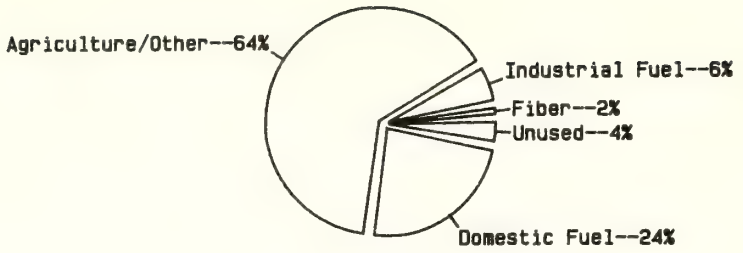
The bulk of the coarse residues from both states went for fiber manufacture. Because New Hampshire's pulpwood demands are much higher, much of Vermont's residues intended for fiber production went to New Hampshire pulpmills. The rest went to pulpmills in other states. Nearly all of the residues used to make pulp were woody material: most were from coarse residues; some from fine residues; nearly none from bark. Much of Vermont's coarse residues were used for fuel. Most of the bark and fine residues from both states were used for agricultural purposes, such as bedding, litter, and mulch.

Since 1972, proportionately much more of both New Hampshire's and Vermont's manufacturing plant residues are being used for fuel, while the unused portion that was buried, burned, or stockpiled for future use declined considerably (Fig. 14). During the 1972-1982 period, the proportion of these residues used for fuel rose by over 60 percent in New Hampshire and more than doubled in Vermont.

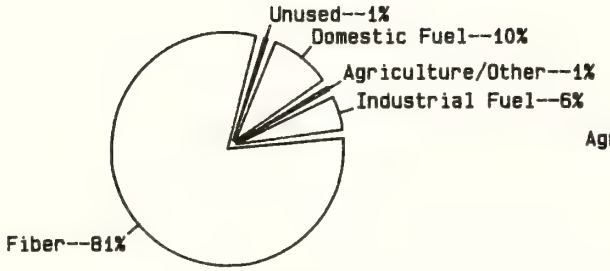
Proportionately much more of New Hampshire's manufacturing residues are being used to make woodpulp, and proportionately less of Vermont's goes into wood fiber. In 1982, about 60 percent more of the total plant residues were used for woodpulp in New Hampshire, while the proportion used in Vermont for this purpose dropped by about 9 percent. Since 1972, the proportion used for agricultural purposes decreased by 31 percent in New Hampshire and remained relatively unchanged in Vermont.

Residue production in the two states was closely related to the industrial roundwood production and receipts for each state. Sixty-four percent of the total residue production was from New Hampshire. Nearly 67 percent of the residues generated from lumber production were from New Hampshire, which produced and consumed about three-fifths of both the combined sawlog harvest and the combined sawlog receipts.

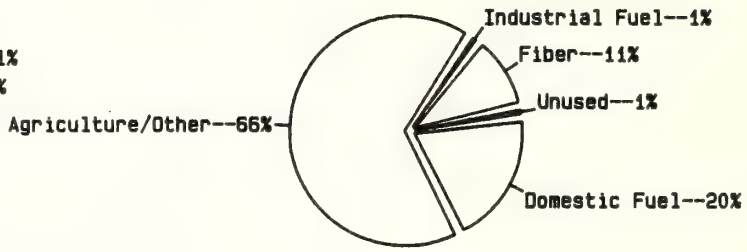
	Volume generated	Fiber	Agricultural	Fuel	All uses
	(million ft^3)	----------Percent used----------			
New Hampshire					
Bark	3.9	3	74	21	98
Coarse	16.7	92	1	6	99
Fine	7.3	11	63	25	99
Total	27.9	59	27	13	99
Vermont					
Bark	3.1	0	52	40	92
Coarse	7.4	55	1	41	97
Fine	5.5	11	74	14	99
Total	16.0	29	36	32	97



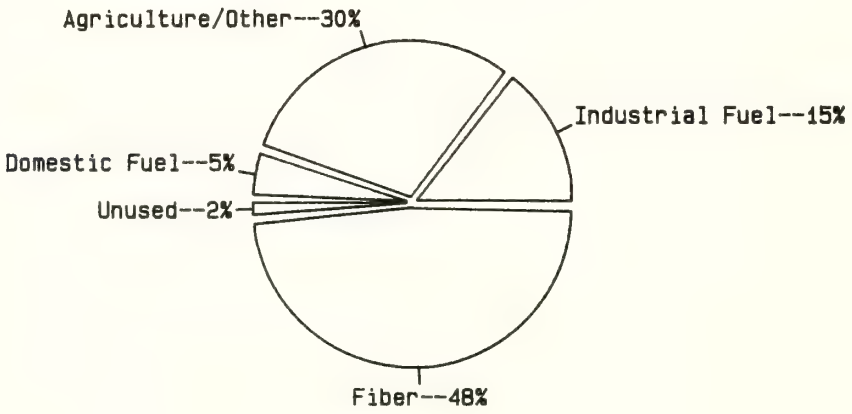
BARK



COARSE

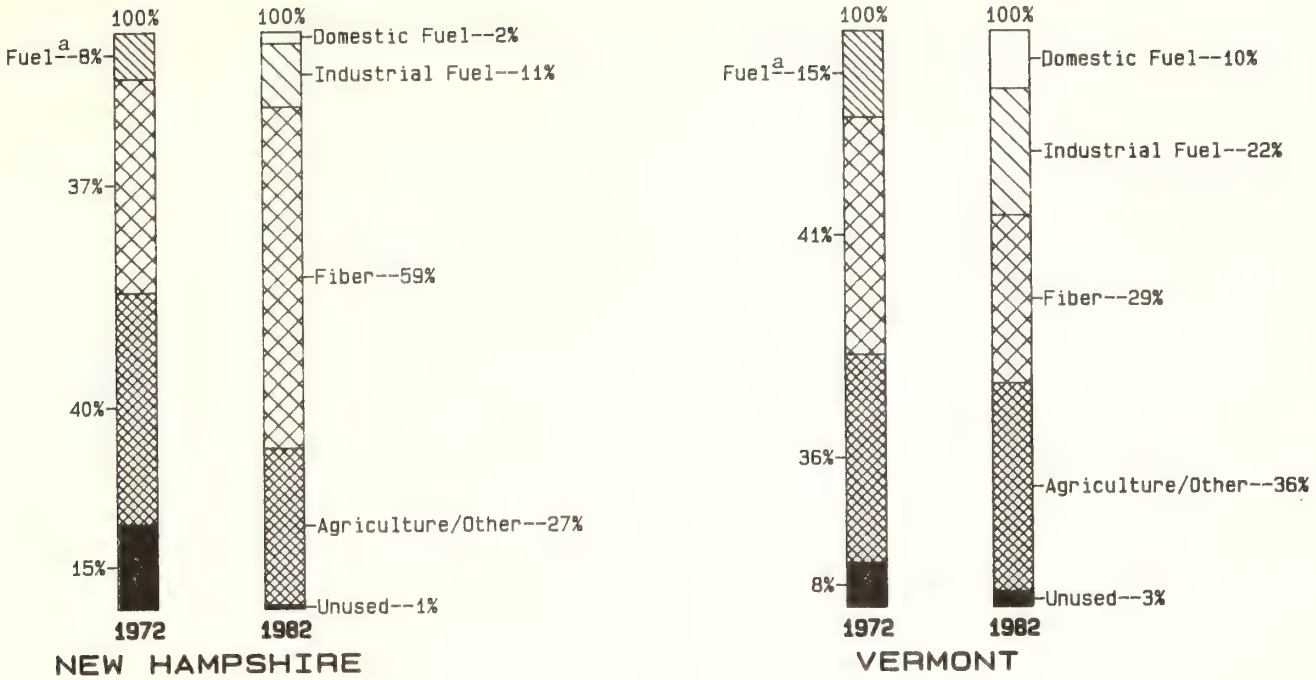


FINE



ALL TYPES

Figure 13.--Wood-manufacturing plant residue use, in percent, in New Hampshire and Vermont, by residue type, 1982.



[a]In 1972, residues for fuel were not segregated according to domestic and industrial use.

Figure 14.--Trends in wood-manufacturing plant residue use, in New Hampshire and Vermont, 1972 and 1982.

Definition of Terms

Harvest

Harvest. The aggregate volume of timber produced for industrial or consumer uses.

Timber products output. Includes roundwood (round timber) products harvested from growing stock on commercial forest land; from other sources, such as cull trees, salvable dead trees, limbs and tops, and saplings; from trees on noncommercial and nonforest lands; and from manufacturing plant byproducts.

Industrial timber harvest. Total production of round timber for conversion into wood products, except fuelwood.

Manufacture

Primary wood manufacturing plant. A plant that converts roundwood (round timber) to wood products such as woodpulp, lumber, veneer, cooperage, and dimension.

Roundwood products. Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use.

Industrial wood or roundwood. Logs, bolts, or other round timber generated from harvesting trees for use by the primary wood manufacturing industry, excluding round timber used to fuel industrial heating and power facilities.

Sawlog. A roundwood product, from which products such as lumber are sawn, and which meets certain standards of minimum diameter and length, and maximum defect, including a minimum 8-foot length and combination of size and defect specified in regional standards.

Pulpwood. Roundwood, mostly converted into 4- or 5-foot lengths, or chips and chipped plant residues that are used to make woodpulp.

Bolтwood. Roundwood, mostly converted into 4- to 6-foot lengths, to be sawn into lumber at bolter-type sawmills, prepared for the manufacture of woodpulp, or used to make other products, such as cooperage, turned products, and veneer, from short, round timber.

Turnery log or bolt. A roundwood product from which blanks are sawn and turned, and that usually meets certain standards of minimum diameter and length, and maximum defect.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn, and that usually meets certain standards of minimum diameter and length, and maximum defect.

Cabin logs. Relatively slender round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness, finished for use in constructing cabins, barns, and other buildings.

Piles (piling). Relatively slender structural round timber products cut to the maximum length possible within top-circumference and other specifications of strength, straightness, and soundness, to be driven or otherwise introduced into the soil, usually to provide vertical or lateral support in buildings, foundations, and other structures.

Poles. Round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness to be driven into the soil, usually to provide vertical or lateral support for electric power and telephone transmission lines.

Posts. Short, round timber products to be used in the upright position to support fence structures.

Roundwood production. The manufacture of roundwood (round timber) products, such as logs and bolts, from trees for conversion into wood products.

Roundwood receipts. The roundwood (round timber) products, such as logs and bolts, received by primary wood-manufacturing plants for conversion into wood products.

Residues

Manufacturing plant residues. Bark and woody materials that are generated when round timber (roundwood) is converted into wood products; includes slabs, edgings, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screenings.

Plant byproducts. Wood products such as pulp chips, recycled from manufacturing plant residue.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered from plant byproducts.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Species

Softwoods. Coniferous trees, usually evergreen, with needles or scale-like leaves.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

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COMBINED

INDUSTRY

STATISTICS

Table 1.--Industrial roundwood production in New Hampshire and Vermont, by state, species group, and major product, 1982

State and species group	Sawlogs[a]	Pulpwood	Other products[b]	Sawlogs[a]	Pulpwood	Other products[b]	Sawlogs[a]	Pulpwood	Other products[b]
	Thousand board feet[c]	Standard cords	Thousand cubic feet	------Thousand cubic feet-------			------Thousand cubic meters------		
New Hampshire									
Softwood	187,026	142,663	2,309	29,940	12,126	2,309	847.9	343.4	65.4
Hardwood	55,559	186,868	4,434	8,466	15,884	4,434	239.8	449.8	125.6
Total	242,585	329,531	6,743	38,406	28,010	6,743	1,087.7	793.2	191.0
Vermont									
Softwood	87,892	148,057	2,723	14,070	12,585	2,723	398.5	356.4	77.1
Hardwood	69,975	153,239	3,177	10,664	13,025	3,177	301.9	368.9	90.0
Total	157,867	301,296	5,900	24,734	25,610	5,900	700.4	725.3	167.1
Both states:									
Softwood	274,918	290,720	5,032	44,010	24,711	5,032	1,246.4	699.8	142.5
Hardwood	125,534	340,107	7,611	19,130	28,909	7,611	541.7	818.7	215.6
Total	400,452	630,827	12,643	63,140	53,620	12,643	1,788.1	1,518.5	358.1

[a] Includes boltwood sawn into lumber.

[b] Includes cabin and tie logs, cooperage and veneer logs and bolts, piling, poles, and stock for dimension, fencing, reconstituted-wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.

[c] International 1/4-inch rule.

Table 2.--Change in industrial roundwood production in New Hampshire and Vermont, 1972 - 1982

State and year	Sawlogs[a]	Pulpwood	Veneer logs	Other products[b]
	Million board feet[c]	Thousand standard cords	Million board feet[c]	Thousand cubic feet
New Hampshire				
1972	182.0	200.7	2.1	2,346
1982	242.6	329.5	7.3	5,631[d]
Percent change	+33	+64	+248	+140
Vermont				
1972	125.2	135.5	7.0	3,699
1982	157.9	301.3	10.4	4,295[e]
Percent change	+26	+122	+49	+16
Both states:				
1972	307.2	336.2	9.1	6,045
1982	400.5	630.8	17.7	9,926
Percent change	+30	+88	+95	+64

[a] Includes boltwood sawn into lumber.

[b] Includes cabin and tie logs, cooperage logs and bolts, piling, poles, and stock for dimension, fencing, reconstituted-wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.

[c] International 1/4-inch rule.

[d] Includes 2.3 million cubic feet of roundwood for conversion to chips for reconstituted-wood panel products.

[e] Includes 1.7 million cubic feet of roundwood for conversion to chips for reconstituted-wood panel products.

Table 3.--Sawlog production in New Hampshire and Vermont, by species group and destination of shipment, 1982

(In millions of board feet)[a]

State and species group	Cut and retained in state	Shipped to:						Total production
		Maine	Massachusetts	New Hampshire	New York	Vermont	Quebec	
				NEW HAMPSHIRE				
Softwood	146.8	0.8	4.6	-	-	12.9	21.9	187.0
Hardwood	42.8	b	4.9	-	-	7.8	.1	55.6
Total	189.6	0.8	9.5	-	-	20.7	22.0	242.6
				VERMONT				
Softwood	62.8	b	0.2	7.6	0.2	-	17.1	87.9
Hardwood	56.5	-	.6	6.7	4.2	-	2.0	70.0
Total	119.3	b	0.8	14.3	4.4	-	19.1	157.9

[a]International 1/4-inch rule. [b]Less than 50,000 board feet.

Table 4.--Sawlog receipts in New Hampshire and Vermont, by species group and origin of shipment, 1982

(In millions of board feet)[a]

State and species group	Cut and retained in state	Origin of shipment						Total receipts
		Maine	Massachusetts	New Hampshire	New York	Vermont	Quebec	
				NEW HAMPSHIRE				
Softwood	146.8	5.5	3.0	-	b	7.6	-	162.9
Hardwood	42.8	1.9	.1	-	-	6.7	-	51.5
Total	189.6	7.4	3.1	-	b	14.3	-	214.4
				VERMONT				
Softwood	62.8	0.2	2.4	12.9	0.8	-	b	79.1
Hardwood	56.5	-	3.2	7.8	5.9	-	0.1	73.5
Total	119.3	0.2	5.6	20.7	6.7	-	0.1	152.6

[a]International 1/4-inch rule. [b]Less than 50,000 board feet.

Table 5.--Number of operating primary wood-manufacturing plants in New Hampshire and Vermont, by type of plant and sawmill production class, 1952, 1972, and 1982

Type of plant and production class	New Hampshire			Vermont		
	1952	1972	1982	1952	1972	1982
Sawmills:[a]						
Under 50 thousand board feet	116	36	24	72	67	83
50 to 199 thousand board feet	85	26	25	102	34	65
200 to 499 thousand board feet	71	15	9	95	26	25
500 to 999 thousand board feet	78	11	16	69	6	12
1 million board feet or over	156	54	54	87	37	38
All production classes	506	142	128	425	170	223
Turnings and square mills	21	10	10	46	17	7
Pulpmills	3	2	2	2	1	1
Veneer mills	3	1	1	10	4	3
Other plants[b]	24	4	12	5	10	15
All types of plants	557	159	153	488	202	249

[a] Based on sawlog receipts.

[b] Includes manufacturers of cabin logs, piling, poles, reconstituted-wood panel products, fencing, shingles, and miscellaneous novelty and specialty items.

Table 6.--Production and disposition of manufacturing plant residues in New Hampshire and Vermont, by type of use, state, and type of residue, 1982

State and type of residue	Type of use						Total residues	Relationship of used residues to total residues
	Fiber[a]	Agricultural[b] and other[c]	Industrial fuel	Domestic fuel	Total used	Unused		
	Thousand cubic feet							Percent
New Hampshire								
Bark	106	2,876	738	90	3,810	76	3,886	98
Coarse[d]	15,506	140	613	397	16,656	89	16,745	99
Fine[e]	811	4,592	1,798	4	7,205	59	7,264	99
Total	16,423	7,608	3,149	491	27,671	224	27,895	99
Vermont								
Bark	-	1,614	921	329	2,864	238	3,102	92
Coarse	4,052	58	1,902	1,140	7,152	246	7,398	97
Fine	612	4,089	737	55	5,493	22	5,515	99
Total	4,664	5,761	3,560	1,524	15,509	506	16,015	97
Both states								
Bark	106	4,490	1,659	419	6,674	314	6,988	96
Coarse	19,558	198	2,515	1,537	23,808	335	24,143	99
Fine	1,423	8,681	2,535	59	12,698	81	12,779	99
Total	21,087	13,369	6,709	2,015	43,180	730	43,910	98

Table 6.--continued

State and type of residue	Type of use						Total residues
	Fiber[a]	Agricultural and other[b]	Industrial fuel	Domestic fuel	Total used	Unused	
	Thousand cubic meters						
New Hampshire							
Bark	3.0	81.4	20.9	2.6	107.9	2.2	110.1
Coarse[c]	439.1	3.9	17.4	11.2	471.6	2.5	474.1
Fine[d]	23.0	130.1	50.9	.1	204.1	1.7	205.8
Total	465.1	215.4	89.2	13.9	783.6	6.4	790.0
Vermont							
Bark	-	45.7	26.1	9.3	81.1	6.7	87.8
Coarse	114.8	1.6	53.9	32.3	202.6	7.0	209.6
Fine	17.3	115.8	20.9	1.6	155.6	.6	156.2
Total	132.1	163.1	100.9	43.2	439.3	14.3	453.6
Both states							
Bark	3.0	127.1	47.0	11.9	189.0	8.9	197.9
Coarse	553.9	5.5	71.3	43.5	674.2	9.5	683.7
Fine	40.3	245.9	71.8	1.7	359.7	2.3	362.0
Total	597.2	378.5	190.1	57.1	1,222.9	20.7	1,243.6

[a] Includes woodpulp and composite products.
[b] Includes livestock bedding, chicken litter, and farm and horticultural mulch.
[c] Includes miscellaneous uses such as small dimension and specialty items.
[d] Includes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.
[e] Includes sawdust, shavings, and other material considered unsuitable for chipping.

NEW HAMPSHIRE

INDUSTRY

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Table 7.--Industrial roundwood production in New Hampshire, by species group and major product, 1982

Species group	Sawlogs[a]	Veneer logs	Pulpwood	Other products[b]
	Thousand board feet[c]		Standard cords	Thousand cubic feet
Hemlock	20,515	-	23,236	157
White pine	128,903	-	35,398	2,016
Spruce and fir	35,963	-	84,029	125
Other softwoods	1,645	-	d	11
Total softwoods	187,026	-	142,663	2,309
Ash	3,093	240	e	482
Aspen	345	21	20,287	355
Beech	2,941	34	e	281
White birch	5,632	4,376	e	1,112
Yellow birch	3,216	1,255	e	401
Elm	24	1	e	-
Hard maple	9,277	62	e	351
Soft maple	1,835	22	e	123
Oaks	24,536	1,056	795	207
Other hardwoods	4,660	206	165,786	10
Total hardwoods	55,559	7,273	186,868	3,322
All species	242,585	7,273	329,531	5,631

[a] Includes boltwood sawn into lumber.

[b] Includes cabin and tie logs, cooperage logs and bolts, piling, poles, and stock for dimension, fencing, shingles, reconstituted-wood panel products, turned products, and miscellaneous novelty and specialty items.

[c] International 1/4-inch rule.

[d] White pine pulpwood includes minor amounts of cedar, other pines and softwoods.

[e] Other hardwood pulpwood includes hardwoods other than aspen and oaks.

Table 8.--Change in industrial roundwood production in New Hampshire, 1972 - 1982

Product	All species			Softwoods			Hardwoods		
	1972	1982	Change	1972	1982	Change	1972	1982	Change
	Thousand cubic feet		Percent	Thousand cubic feet		Percent	Thousand cubic feet		Percent
Sawlogs[a]	30,466	38,406	+26	22,649	29,940	+32	7,817	8,466	+8
Veneer logs	333	1,112	c	-	-	-	333	1,112	c
Pulpwood	17,060	28,010	+64	5,429	12,126	c	11,631	15,884	+37
Other products[b]	2,346	5,631	c	433	2,309	c	1,913	3,322	+74
Total	50,205	73,159	+46	28,511	44,375	+56	21,694	28,784	+33

[a]Includes boltwood sawn into lumber.
[b]Includes cabin and tie logs, piling, poles, and stock for dimension, fencing, reconstituted-wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.
[c]Greater than 100 percent increase.

Table 9.--Industrial roundwood production for New Hampshire, by county, species group, and major product, 1982

(In thousands of cubic feet)

County and species group	Product			Total
	Sawlogs[a]	Pulpwood	Other[b]	
Belknap:				
Softwood	1,056	163	58	1,277
Hardwood	224	99	53	376
Total	1,280	262	111	1,653
Carroll:				
Softwood	3,118	3,249	10	6,377
Hardwood	579	3,402	463	4,444
Total	3,697	6,651	473	10,821
Cheshire:				
Softwood	2,278	177	451	2,906
Hardwood	1,349	1	98	1,448
Total	3,627	178	549	4,354
Coos:				
Softwood	4,827	6,111	53	10,991
Hardwood	1,935	9,932	1,747	13,614
Total	6,762	16,043	1,800	24,605
Grafton:				
Softwood	6,963	2,069	660	9,692
Hardwood	2,150	2,325	1,034	5,509
Total	9,113	4,394	1,694	15,201
Hillsborough:				
Softwood	2,674	10	66	2,750
Hardwood	537	18	68	623
Total	3,211	28	134	3,373
Merrimack:				
Softwood	3,418	49	250	3,717
Hardwood	496	36	222	754
Total	3,914	85	472	4,471
Rockingham:				
Softwood	1,674	110	3	1,787
Hardwood	394	67	1	462
Total	2,068	177	4	2,249

Table 9.--Continued

County and species group	Product			Total
	Sawlogs[a]	Pulpwood	Other[b]	
Strafford:				
Softwood	1,264	117	c	1,381
Hardwood	191	-	465	656
Total	1,455	117	465	2,037
Sullivan:				
Softwood	2,668	71	758	3,497
Hardwood	611	4	283	898
Total	3,279	75	1,041	4,395
All counties:				
Softwood	29,940	12,126	2,309	44,375
Hardwood	8,466	15,884	4,434	28,784
Total	38,406	28,010	6,743	73,159

[a] Includes boltwood sawn into lumber.
[b] Includes cabin and tie logs, piling, poles, and stock for dimension, fencing, reconstituted wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.
[c] Less than 500 cubic feet.

Table 10.--Sawlog production and receipts in New Hampshire, by county and species group, 1982

(In thousands of board feet)[a]

County	Production		Receipts	
	Softwoods	Hardwoods	Softwoods	Hardwoods
Belknap	6,596	1,468	15,446	1,446
Carroll	19,477	3,801	7,800	1,385
Cheshire	14,231	8,855	14,405	10,689
Coos	30,151	12,697	14,702	11,269
Grafton	43,494	14,109	33,116	15,101
Hillsborough	16,705	3,524	13,676	921
Merrimack	21,348	3,255	32,699	5,352
Rockingham	10,459	2,584	9,790	2,856
Strafford	7,899	1,254	11,699	1,035
Sullivan	16,666	4,012	9,603	1,374
All counties	187,026	55,559	162,936	51,428
All species	242,585		214,364	

[a]International 1/4-inch rule.

Table 11.--Species composition of sawlogs produced in New Hampshire, for selected years

(In percent)

Species	1905[a]	1926[a]	1952	1972	1982
Softwoods					
Hemlock	9	9	12	8	8
White pine	62	64	73	53	53
Spruce/fir	18	13	4	11	15
Other softwoods	1	-	-	1	1
Total	90	86	89	73	77
Hardwoods					
Beech	1	2	1	2	1
Birch	2	5	4	9	4
Maple	1	3	3	9	5
Oak	2	3	2	5	10
Other hardwoods	4	1	1	2	3
Total	10	14	11	27	23
All species	100	100	100	100	100
Volume of harvest (Million board feet)[b]	340.7	243.0	297.0	182.0	242.6

[a]Based on lumber production.
[b]International 1/4-inch rule.

Table 12.--Sawlog production in New Hampshire, by county, species group, and destination of shipment, 1982

(In thousands of board feet)[a]

County and species group	Cut and retained in county	Logs shipped to:		Total production
		Other counties	Other states	
Belknap:				
Softwood	3,281	3,315	-	6,596
Hardwood	489	979	-	1,468
Total	3,770	4,294	-	8,064
Carroll:				
Softwood	6,083	11,810	1,584	19,477
Hardwood	1,005	770	2,026	3,801
Total	7,088	12,580	3,610	23,278
Cheshire:				
Softwood	8,911	2,425	2,895	14,231
Hardwood	6,583	689	1,583	8,855
Total	15,494	3,114	4,478	23,086
Coos:				
Softwood	6,321	434	23,396	30,151
Hardwood	8,269	702	3,726	12,697
Total	14,590	1,136	27,122	42,848
Grafton:				
Softwood	28,609	9,874	5,011	43,494
Hardwood	10,025	652	3,432	14,109
Total	38,634	10,526	8,443	57,603
Hillsborough:				
Softwood	9,003	7,559	143	16,705
Hardwood	605	2,855	64	3,524
Total	9,608	10,414	207	20,229
Merrimack:				
Softwood	17,810	3,538	-	21,348
Hardwood	2,605	650	-	3,255
Total	20,415	4,188	0	24,603

Table 12.--Continued

County and species group	Cut and retained in county	Logs shipped to:		Total production
		Other counties	Other states	
Rockingham:				
Softwood	7,688	1,924	847	10,459
Hardwood	2,334	247	3	2,584
Total	10,022	2,171	850	13,043
Strafford:				
Softwood	1,267	3,629	3,003	7,899
Hardwood	179	537	538	1,254
Total	1,446	4,166	3,541	9,153
Sullivan:				
Softwood	6,712	6,631	3,323	16,666
Hardwood	915	1,689	1,408	4,012
Total	7,627	8,320	4,731	20,678
All counties:				
Softwood	95,685	51,139	40,202	187,026
Hardwood	33,009	9,770	12,780	55,559
Total	128,694	60,909	52,982	242,585

[a]International 1/4-inch rule.

Table 13.--Sawlog receipts in New Hampshire, by county, species group, and origin of shipment, 1982

(In thousands of board feet)[a]

County and species group	Cut and retained in county	Logs received from:		Total receipts
		Other counties	Other states	
Belknap:				
Softwood	3,281	12,165	-	15,446
Hardwood	489	957	-	1,446
Total	3,770	13,122	-	16,892
Carroll:				
Softwood	6,083	1,270	447	7,800
Hardwood	1,005	340	40	1,385
Total	7,088	1,610	487	9,185
Cheshire:				
Softwood	8,911	2,470	3,024	14,405
Hardwood	6,583	2,001	2,105	10,689
Total	15,494	4,471	5,129	25,094
Coos:				
Softwood	6,321	4,860	3,521	14,702
Hardwood	8,269	145	2,855	11,269
Total	14,590	5,005	6,376	25,971
Grafton:				
Softwood	28,609	1,179	3,328	33,116
Hardwood	10,025	2,439	2,637	15,101
Total	38,634	3,618	5,965	48,217
Hillsborough:				
Softwood	9,003	1,877	2,796	13,676
Hardwood	605	75	241	921
Total	9,608	1,952	3,037	14,597
Merrimack:				
Softwood	17,810	13,757	1,132	32,699
Hardwood	2,605	2,435	312	5,352
Total	20,415	16,192	1,444	38,051

Table 13.--Continued

County and species group	Cut and retained in county	Logs received from:		Total receipts
		Other counties	Other states	
Rockingham:				
Softwood	7,688	2,049	53	9,790
Hardwood	2,334	510	12	2,856
Total	10,022	2,559	65	12,646
Strafford:				
Softwood	1,267	9,990	442	11,699
Hardwood	179	815	41	1,035
Total	1,446	10,805	483	12,734
Sullivan:				
Softwood	6,712	1,522	1,369	9,603
Hardwood	915	53	406	1,374
Total	7,627	1,575	1,775	10,977
All counties:				
Softwood	95,685	51,139	16,112	162,936
Hardwood	33,009	9,770	8,649	51,428
Total	128,694	60,909	24,761	214,364

[a]International 1/4-inch rule.

Table 14.--Pulpwood production in New Hampshire, by type of pulpwood, 1963 - 1982

(In thousands of rough cords)[a]

Year	All types	Type of pulpwood		
		Roundwood		Chipped residues[b]
		Softwoods	Hardwoods	
1963	222.0	83.8	96.5	41.7
1964	240.0	108.3	77.3	54.4
1965	250.5	125.3	75.1	50.1
1966	284.9	112.8	110.4	61.7
1967	320.2	112.9	124.9	82.4
Total, 5 years	1,317.6	543.1	484.2	290.3
1968	335.5	92.8	157.1	85.6
1969	319.3	81.2	147.3	90.8
1970	304.5	47.2	151.9	105.4
1971	329.3	96.0	141.1	92.2
1972	311.4	63.9	136.8	110.7
Total, 5 years	1,600.0	381.1	734.2	484.7
1973	335.9	54.6	176.1	105.2
1974	390.2	62.6	188.5	139.1
1975	345.8	56.6	168.9	120.3
1976	327.9	56.2	131.6	140.1
1977	498.1	101.6	248.8	147.7
Total, 5 years	1,897.9	331.6	913.9	652.4
1978	508.1	128.6	195.6	183.9
1979	519.9	107.0	171.1	241.8
1980	479.9	92.5	161.6	225.8
1981	409.8	101.2	146.6	162.0
1982	522.7	142.6	186.9	193.2
Total, 5 years	2,440.4	571.9	861.8	1,006.7

[a]128 cubic feet of wood, bark, and air space, or 85 cubic feet of solid wood.

[b]Rough cord equivalents.

Table 15.--Production and disposition of manufacturing plant residues, by type of use and industry source, New Hampshire, 1982

Type of use	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
	Thousand cubic feet			
LUMBER				
Fiber[c]	48	14,707	811	15,566
Industrial fuel	616	405	1,530	2,551
Domestic fuel	85	320	4	409
Agricultural[d] and other[e]	2,801	136	4,449	7,386
Total, used	3,550	15,568	6,794	25,912
Unused	71	21	58	150
OTHER INDUSTRIES[f]				
Fiber	58	799	-	857
Industrial fuel	122	208	268	598
Domestic fuel	5	77	-	82
Agricultural and other	75	4	143	222
Total, used	260	1,088	411	1,759
Unused	5	68	1	74
ALL INDUSTRIES				
Fiber	106	15,506	811	16,423
Industrial fuel	738	613	1,798	3,149
Domestic fuel	90	397	4	491
Agriculture and other	2,876	140	4,592	7,608
Total, used	3,810	16,656	7,205	27,671
Unused	76	89	59	224

Table 15.--continued

Type of use	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
	Thousand cubic meters			
		LUMBER		
Fiber[c]	1.4	416.5	23.0	440.9
Industrial fuel	17.4	11.5	43.3	72.2
Domestic fuel	2.4	9.1	.1	11.6
Agricultural[d] and other[e]	79.3	3.8	126.1	209.2
Total, used	100.5	440.9	192.5	733.9
Unused	2.0	.6	1.7	4.3
		OTHER INDUSTRIES[f]		
Fiber	1.6	22.6	-	24.2
Industrial fuel	3.5	5.9	7.6	17.0
Domestic fuel	.2	2.1	-	2.3
Agricultural and other	2.1	.1	4.0	6.2
Total, used	7.4	30.7	11.6	49.7
Unused	.2	1.9	.0	2.1
		ALL INDUSTRIES		
Fiber	3.0	439.1	23.0	465.1
Industrial fuel	20.9	17.4	50.9	89.2
Domestic fuel	2.6	11.2	.1	13.9
Agriculture	81.4	3.9	130.1	215.4
Total, used	107.9	471.6	204.1	783.6
Unused	2.2	2.5	1.7	6.4

[a]Includes slabs, edgings, trimmings, and other material suitable for chipping.
[b]Includes sawdust, shavings, and other material considered unsuitable for chipping.
[c]Includes woodpulp and composite materials.
[d]Includes livestock bedding, chicken litter, and farm and horticultural mulch.
[e]Includes miscellaneous uses such as small dimension and specialty items.
[f]Includes manufacturers of cabin logs, ties, cooperage, piling, poles, and dimension, fencing, shingles, turned products, and miscellaneous novelty and specialty items.

VERMONT

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Table 16.--Industrial roundwood production in Vermont, by species group and major product, 1982

Species group	Sawlogs[a]	Veneer logs	Pulpwood	Other products[b]
	Thousand board feet[c]		Standard cords	Thousand cubic feet
Hemlock	20,286	700	26,567	83
White pine	34,485	1,300	14,937	1,361
Spruce and fir	29,364	250	106,240	242
Other softwoods	3,757	-	313	677
Total softwoods	87,892	2,250	148,057	2,363
Ash	6,256	277	5,097	141
Beech	5,233	1,138	22,649	58
White birch	2,244	2,368	7,733	777
Yellow birch	6,630	1,089	30,435	81
Elm	562	36	870	8
Hard maple	29,672	907	47,425	794
Soft maple	4,465	740	22,986	20
Oaks	7,261	802	1,335	15
Other hardwoods	7,652	787	14,709	38
Total hardwoods	69,975	8,144	153,239	1,932
All species	157,867	10,394	301,296	4,295

[a] Includes boltwood sawn into lumber.
[b] Includes cabin and tie logs, cooperage logs and bolts, piling, poles, and stock for dimension, fencing, reconstituted-wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.
[c] International 1/4-inch rule.

Table 17.--Change in industrial roundwood production in Vermont, 1972 - 1982

Product	All species			Softwoods			Hardwoods		
	1972	1982	Change	1972	1982	Change	1972	1982	Change
	Thousand cubic feet		Percent	Thousand cubic feet		Percent	Thousand cubic feet		Percent
Sawlogs[a]	19,729	24,734	+25	8,460	14,070	+66	11,323	10,664	-6
Veneer logs	1,124	1,605	+43	--	360	b	1,124	1,245	+11
Pulpwood	11,519	25,610	b	4,836	12,585	b	6,683	13,025	+95
Poles and posts	435	129	-70	349	121	-65	86	8	-91
Other products[c]	3,264	4,166	+28	801	2,242	b	2,463	1,924	-22
Total	36,071	56,244	+56	14,446	29,378	+103	21,679	26,866	+24

[a] Includes boltwood sawn into lumber.
[b] Greater than 100 percent increase.
[c] Includes cabin and tie logs, piling, and stock for dimension, fencing, reconstituted-wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.

Table 18.--Industrial roundwood production for Vermont, by county, species group, and major product, 1982

(In thousands of cubic feet)

County and species group	Product			Total
	Sawlogs[a]	Pulpwood	Other[b]	
Addison:				
Softwood	242	67	61	370
Hardwood	1,043	73	62	1,178
Total	1,285	140	123	1,548
Bennington:				
Softwood	437	333	142	912
Hardwood	1,164	522	359	2,045
Total	1,601	855	501	2,957
Caledonia:				
Softwood	1,937	3,575	193	5,705
Hardwood	696	1,608	172	2,476
Total	2,633	5,183	365	8,181
Chittenden:				
Softwood	455	61	4	520
Hardwood	320	2	29	351
Total	775	63	33	871
Essex:				
Softwood	1,881	3,701	2	5,584
Hardwood	1,180	7,877	421	9,478
Total	3,061	11,578	423	15,062
Franklin and Grand Isle:				
Softwood	907	230	-	1,137
Hardwood	390	321	191	902
Total	1,297	551	191	2,039
Lamoille:				
Softwood	1,216	489	19	1,724
Hardwood	983	94	204	1,281
Total	2,199	583	223	3,005
Orange:				
Softwood	1,142	347	258	1,747
Hardwood	595	286	213	1,094
Total	1,737	633	471	2,841
Orleans:				
Softwood	700	1,980	517	3,197
Hardwood	352	1,162	195	1,709
Total	1,052	3,142	712	4,906

Table 18.--Continued

County and species group	Product			Total
	Sawlogs[a]	Pulpwood	Other[b]	
Rutland:				
Softwood	417	551	396	1,364
Hardwood	1,267	102	505	1,874
Total	1,684	653	901	3,238
Washington:				
Softwood	1,077	157	18	1,252
Hardwood	784	60	127	971
Total	1,861	217	145	2,223
Windham:				
Softwood	1,955	584	361	2,900
Hardwood	924	789	288	2,001
Total	2,879	1,373	649	4,901
Windsor:				
Softwood	1,704	510	752	2,966
Hardwood	966	129	411	1,506
Total	2,670	639	1,163	4,472
All counties:				
Softwood	14,070	12,585	2,723	29,378
Hardwood	10,664	13,025	3,177	26,866
Total	24,734	25,610	5,900	56,244

[a]Includes boltwood sawn into lumber.
[b]Includes cabin and tie logs, piling, poles, and stock for dimension, fencing, reconstituted-wood panel products, shingles, turned products, and miscellaneous novelty and specialty items.

Table 19.--Sawlog production and receipts in Vermont, by county and species group, 1982

(In thousands of board feet)[a]

County	Production		Receipts	
	Softwoods	Hardwoods	Softwoods	Hardwoods
Addison	1,515	6,844	2,825	16,576
Bennington	2,731	7,634	2,273	8,271
Caledonia	12,099	4,568	12,406	5,286
Chittenden	2,841	2,100	8,192	6,781
Essex	11,749	7,742	2,591	4,677
Franklin & Grand Isle	5,664	2,560	802	165
Lamoille	7,600	6,453	3,807	5,381
Orange	7,131	3,908	6,238	4,063
Orleans	4,375	2,309	2,187	1,428
Rutland	2,604	8,314	1,830	6,989
Washington	6,727	5,140	3,534	341
Windham	12,211	6,065	16,140	7,228
Windsor	10,645	6,338	16,307	6,293
All counties	87,892	69,975	79,132	73,479
All species	157,867		152,611	

[a]International 1/4-inch rule.

Table 20.--Species composition of sawlogs produced in Vermont, for selected years

(In percent)

Species	1900	1926	1952	1972	1982
Hemlock	11	10	17	8	13
White pine	5	8	19	23	22
Spruce and fir	70	21	23	12	19
Other hardwoods	b	b	2	1	2
Total softwoods	86	39	61	44	56
Ash	b	3	2	3	4
Basswood	1	2	1	b	b
Beech	-	9	5	6	3
Birch	4	18	11	12	6
Maple	5	27	17	31	22
Oak	2	1	2	3	4
Other hardwoods	2	1	1	1	5
Total hardwoods	14	61	39	56	44
All species	100	100	100	100	100
Volume of harvest (Million board feet)[a]	365.8	137.0	269.7	125.2	157.9

[a] International 1/4-inch rule.
[b] Less than 0.5 percent.

Table 21.--Sawlog production in Vermont, by county, species group, and destination of shipment, 1982

(In thousands of board feet)[a]

County and species group	Cut and retained in county	Logs shipped to:		Total production
		Other counties	Other states	
Addison:				
Softwood	1,026	489	-	1,515
Hardwood	5,616	1,228	-	6,844
Total	6,642	1,717	-	8,359
Bennington:				
Softwood	1,100	871	760	2,731
Hardwood	2,534	1,460	3,640	7,634
Total	3,634	2,331	4,400	10,365
Caledonia:				
Softwood	7,787	1,286	3,026	12,099
Hardwood	2,342	947	1,279	4,568
Total	10,129	2,233	4,305	16,667
Chittenden:				
Softwood	2,548	293	-	2,841
Hardwood	847	1,237	16	2,100
Total	3,395	1,530	16	4,941
Essex:				
Softwood	1,004	537	10,208	11,749
Hardwood	788	1,035	5,919	7,742
Total	1,792	1,572	16,127	19,491
Franklin and Grand Isle:				
Softwood	772	1,070	3,822	5,664
Hardwood	164	2,267	129	2,560
Total	936	3,337	3,951	8,224
Lamoille:				
Softwood	2,609	3,532	1,459	7,600
Hardwood	2,692	3,627	134	6,453
Total	5,301	7,159	1,593	14,053
Orange:				
Softwood	2,938	3,114	1,079	7,131
Hardwood	2,421	1,310	177	3,908
Total	5,359	4,424	1,256	11,039
Orleans:				
Softwood	1,871	898	1,606	4,375
Hardwood	998	1,214	97	2,309
Total	2,869	2,112	1,703	6,684

Table 21.--Continued

County and species group	Cut and retained in county	Logs shipped to:		Total production
		Other counties	Other states	
Rutland:				
Softwood	1,504	640	460	2,604
Hardwood	2,914	4,256	1,144	8,314
Total	4,418	4,896	1,604	10,918
Washington:				
Softwood	2,995	3,645	87	6,727
Hardwood	321	4,793	26	5,140
Total	3,316	8,438	113	11,867
Windham:				
Softwood	10,703	484	1,024	12,211
Hardwood	4,563	1,287	215	6,065
Total	15,266	1,771	1,239	18,276
Windsor:				
Softwood	7,110	1,940	1,595	10,645
Hardwood	3,135	2,475	728	6,338
Total	10,245	4,415	2,323	16,983
All counties:				
Softwood	43,967	18,799	25,126	87,892
Hardwood	29,335	27,136	13,504	69,975
Total	73,302	45,935	38,630	157,867

[a]International 1/4-inch rule.

Table 22.--Sawlog receipts in Vermont, by county, species group, and origin of shipment, 1982

(In thousands of board feet)[a]

County and species group	Cut and retained in county	Logs received from:		Total receipts
		Other counties	Other states	
Addison:				
Softwood	1,026	1,545	254	2,825
Hardwood	5,616	8,964	1,996	16,576
Total	6,642	10,509	2,250	19,401
Bennington:				
Softwood	1,100	-	1,173	2,273
Hardwood	2,534	1,172	4,565	8,271
Total	3,634	1,172	5,738	10,544
Caledonia:				
Softwood	7,787	4,611	8	12,406
Hardwood	2,342	2,237	707	5,286
Total	10,129	6,848	715	17,692
Chittenden:				
Softwood	2,548	5,376	268	8,192
Hardwood	847	5,915	19	6,781
Total	3,395	11,291	287	14,973
Essex:				
Softwood	1,004	853	734	2,591
Hardwood	788	852	3,037	4,677
Total	1,792	1,705	3,771	7,268
Franklin and Grand Isle:				
Softwood	772	30	-	802
Hardwood	164	1	-	165
Total	936	31	-	967
Lamoille:				
Softwood	2,609	1,180	18	3,807
Hardwood	2,692	2,584	105	5,381
Total	5,301	3,764	123	9,188
Orange:				
Softwood	2,938	1,994	1,306	6,238
Hardwood	2,421	763	879	4,063
Total	5,359	2,757	2,185	10,301
Orleans:				
Softwood	1,871	316	-	2,187
Hardwood	998	430	-	1,428
Total	2,869	746	-	3,615

Table 22.--Continued

County and species group	Cut and retained in county	Logs received from:		Total receipts
		Other counties	Other states	
Rutland:				
Softwood	1,504	280	46	1,830
Hardwood	2,914	3,286	789	6,989
Total	4,418	3,566	835	8,819
Washington:				
Softwood	2,995	485	54	3,534
Hardwood	321	20	-	341
Total	3,316	505	54	3,875
Windham:				
Softwood	10,703	491	4,946	16,140
Hardwood	4,563	289	2,376	7,228
Total	15,266	780	7,322	23,368
Windsor:				
Softwood	7,110	1,638	7,559	16,307
Hardwood	3,135	623	2,535	6,293
Total	10,245	2,261	10,094	22,600
All counties:				
Softwood	43,967	18,799	16,366	79,132
Hardwood	29,335	27,136	17,008	73,479
Total	73,302	45,935	33,374	152,611

[a]International 1/4-inch rule.

Table 23.--Pulpwood production in Vermont, by type of pulpwood, 1963 - 1982

(In thousands of rough cords)[a]

Year	All types	Type of pulpwood		
		Roundwood		Chipped residues[b]
		Softwoods	Hardwoods	
1963	173.8	110.5	45.0	18.3
1964	173.7	114.2	35.5	24.0
1965	150.1	87.0	26.0	37.1
1966	145.1	97.1	28.9	19.1
1967	147.0	93.8	33.7	19.5
Total, 5 years	789.7	502.6	169.1	118.0
1968	149.4	83.2	37.6	28.6
1969	142.1	61.7	45.5	34.9
1970	149.3	75.7	49.1	24.5
1971	148.3	61.7	59.2	27.4
1972	166.6	56.9	78.6	31.1
Total, 5 years	755.7	339.2	270.0	146.5
1973	193.3	63.9	76.5	52.9
1974	258.5	107.1	90.7	60.7
1975	209.5	71.6	93.4	44.5
1976	216.2	90.0	81.6	44.6
1977	293.0	93.7	125.7	73.6
Total, 5 years	1,170.5	426.3	467.9	276.3
1978	287.8	96.0	116.1	75.7
1979	378.6	116.5	174.5	87.6
1980	376.2	127.7	169.3	79.2
1981	342.5	159.0	124.4	59.1
1982	356.2	148.1	153.2	54.9
Total, 5 years	1,741.3	647.3	737.5	356.5

[a]128 cubic feet of wood, bark, and air space, or 85 cubic feet of solid wood. [b]Rough cord equivalents.

Table 24.--Veneer log production[a] and receipts, by species, and destination and origin of shipment, Vermont, 1982

(In thousands of board feet)[b]

Species	Cut and retained in Vermont	Exported to:				Total production	Imported from:					Total receipts
		Maine	New Hampshire	New York	Quebec		Conn.	Maine	Mass.	New Hampshire	New York	
Hardwoods:												
Ash	273	-	-	4	-	277	66	30	65	240	356	1,030
Aspen	657	-	-	-	-	657	-	-	35	21	35	748
Basswood	35	-	-	-	-	35	-	100	2	-	62	199
Beech	1,065	-	-	73	-	1,138	-	-	58	34	58	1,215
White birch	1,427	358	250	333	-	2,368	9	60	232	206	112	2,046
Yellow birch	1,089	-	-	-	-	1,089	60	186	49	1,104	1,084	3,572
Elm	36	-	-	-	-	36	-	-	2	1	2	41
Hard maple	748	-	-	159	-	907	-	30	38	62	68	946
Soft maple	679	-	-	61	-	740	-	-	37	22	37	775
Red oak	737	-	-	-	65	802	1,054	100	316	1,056	2,312	5,575
Other hardwoods	82	-	-	13	-	95	-	-	5	148	5	240
Total	6,828	358	250	643	65	8,144	1,189	506	839	2,894	4,131	16,387
Softwoods:[c]	-	-	-	2,250	-	2,250	-	-	-	-	-	-
All species	6,828	358	250	2,893	65	10,394	1,189	506	839	2,894	4,131	16,387

[a]Veneer logs handled by brokers for overseas shipment are not included.

[b]International 1/4-inch rule.

[c]Softwoods include 700 thousand board feet of hemlock, 250 thousand board feet of spruce and fir, and 1,300 thousand board feet of white pine shipped to New York.

Table 25.--Production and disposition of manufacturing plant residues, by type of use and industry source, Vermont, 1982

Type of use	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
	Thousand cubic feet			
LUMBER				
Fiber[c]	-	3,651	-	3,651
Industrial fuel	529	1,243	446	2,218
Domestic fuel	305	838	53	1,196
Agricultural[d] and other[e]	1,557	57	3,904	5,518
Total, used	2,391	5,789	4,403	12,583
Unused	209	175	18	402
VENEER				
Fiber	-	247	612	859
Industrial fuel	305	441	137	883
Domestic fuel	-	151	-	151
Agricultural and other	-	-	26	26
Total, used	305	839	775	1,919
Unused	-	-	-	-
OTHER INDUSTRIES[f]				
Fiber	-	154	-	154
Industrial fuel	87	218	154	459
Domestic fuel	24	151	2	177
Agricultural and other	57	1	159	217
Total, used	168	524	315	1,007
Unused	29	71	4	104
ALL INDUSTRIES				
Fiber	-	4,052	612	4,664
Industrial fuel	921	1,902	737	3,560
Domestic fuel	329	1,140	55	1,524
Agricultural and other	1,614	58	4,089	5,761
Total, used	2,864	7,152	5,493	15,509
Unused	238	246	22	506

Table 25.--continued

Type of use	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
	Thousand cubic meters			
		LUMBER		
Fiber[c]	-	103.4	-	103.4
Industrial fuel	15.0	35.2	12.6	62.8
Domestic fuel	8.6	23.7	1.6	33.9
Agricultural[d] and other[e]	44.1	1.6	110.6	156.3
Total, used	67.7	163.9	124.8	356.4
Unused	5.9	5.0	.5	11.4
		VENEER		
Fiber	-	7.0	17.3	24.3
Industrial fuel	8.6	12.5	3.9	25.0
Domestic fuel	-	4.3	-	4.3
Agricultural and other	-	-	.7	.7
Total, used	8.6	23.8	21.9	54.3
Unused	-	-	-	-
		OTHER INDUSTRIES[f]		
Fiber	-	4.4	-	4.4
Industrial fuel	2.5	6.2	4.4	13.1
Domestic fuel	.7	4.3	-	5.0
Agricultural and other	1.6	.0	4.5	6.1
Total, used	4.8	14.9	8.9	28.6
Unused	.8	2.0	.1	2.9
		ALL INDUSTRIES		
Fiber	-	114.8	17.3	132.1
Industrial fuel	26.1	53.9	20.9	100.9
Domestic fuel	9.3	32.3	1.6	43.2
Agricultural and other	45.7	1.6	115.8	163.1
Total, used	81.1	202.6	155.6	439.3
Unused	6.7	7.0	.6	14.3

[a]Includes slabs, edgings, trimmings, and other material suitable for chipping.
[b]Includes sawdust, shavings, and other material considered unsuitable for chipping.
[c]Includes woodpulp and composite materials.
[d]Includes livestock bedding, chicken litter, and farm and horticultural mulch.
[e]Includes miscellaneous uses such as small dimension and specialty items.
[f]Includes manufacturers of cabin logs, ties, cooperage, piling, poles, and dimension, fencing, shingles, turned products, and miscellaneous novelty and specialty items.

Round Timber Conversions for Major Products

Softwood sawlogs: M bf(International 1/4-inch rule) = 160.1 ft^3 = 4.54 m^3

Hardwood sawlogs: M bf(International 1/4-inch rule) = 152.4 ft^3 = 4.32 m^3

Pulpwood and turnery bolts: 1 standard cord = 85 ft^3 of solid wood = 2.41 m^3 = about 2.8 green tons for hardwoods and about 2.3 green tons for softwoods

Veneer and cooperage logs and bolts: M bf(International 1/4-inch rule) = 152.9 ft^3 = 4.33 m^3

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Reports the results of a survey of the timber industries of New Hampshire and Vermont; contains statistics on industrial timber production and receipts, and production and disposition of the manufacturing residues. Comparisons are made with most recent data, and trends in industrial wood output are noted. Includes 25 statistical tables.

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Thomas W. Birch

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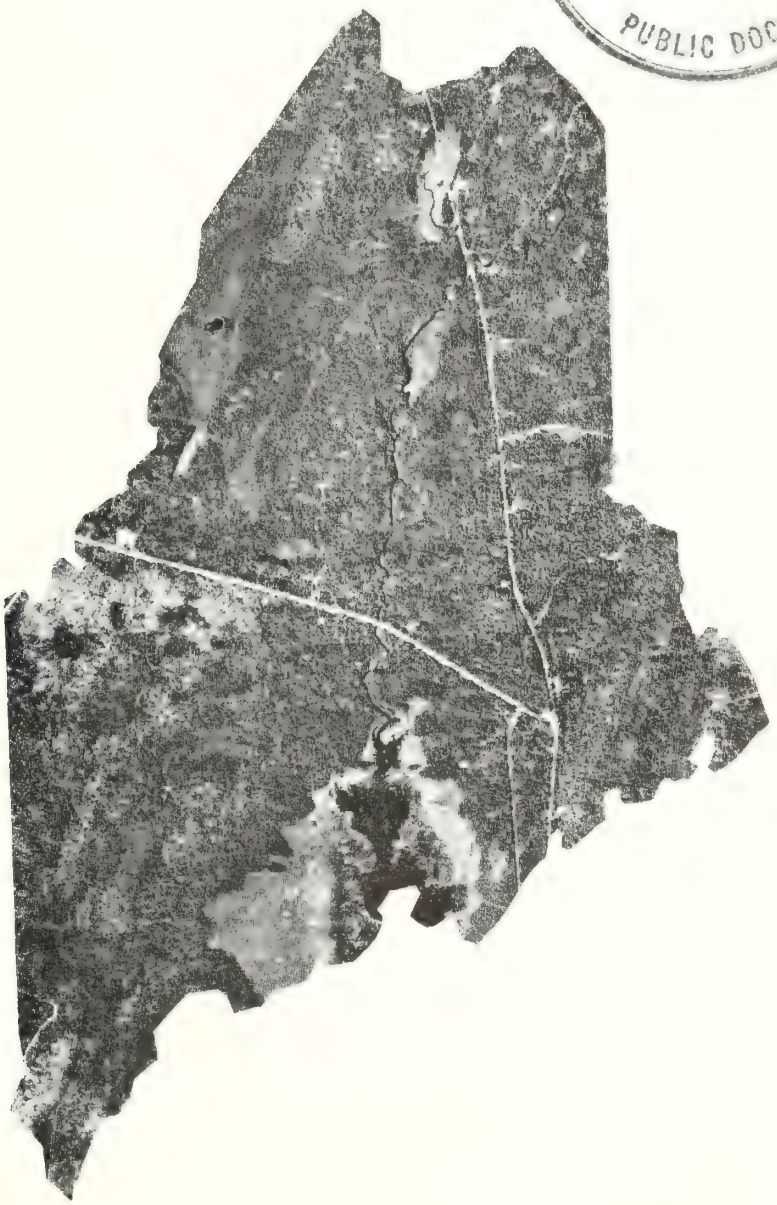

Abstract

Information about the attitudes and objectives of the private forest-land owners is essential to understanding Maine's forest resources. Ninety-six percent of Maine's 17 million acres of timberland is in 180,900 private ownerships. Ninety-two percent of these ownerships are individual and joint ownerships. A majority, 66 percent of the owners, live within a mile of their nearest tract, and 72 percent own only one tract. Benefits other than timber production are most important to a majority of Maine's landowners, but 61 percent of the timberland is in ownerships that have timber production as the primary reason for owning forest land. Fifty-three percent of the private owners have harvested trees from their land, they own 92 percent of the private forest land. Fifty-three percent of the private owners with almost 14 million acres of forest land allow public use of their forest land for recreation.

The Author

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COVER PHOTO: An aerial view of Washington County, ME.

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The Forest-land Owners of Maine

Thomas W. Birch

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Highlights

- Ninety-six percent of Maine's 17 million acres of timberland is in 180,900 private ownerships.

- Forty-four percent of the private ownerships hold more than 10 acres each, these owners account for 98 percent of the private timberland.

- Ninety-two percent of the private ownership units are individual and joint ownerships.

- Forest industries own 8,016,900 acres of timberland, 49 percent of the private timberland.

- Benefits other than income from timber production are most important to a majority of Maine's landowners, but 61 percent of the private timberland is in ownerships that have timber production as the primary reason for owning forest land.

Introduction

Our forest resources are vital to the social and economic well-being of our society. Good decisionmaking about these resources requires a thorough knowledge of the resource base and the factors affecting it. This publication gives estimates of the number and characteristics of the private forest-land ownerships in Maine. It describes attitudes of typical forest-land owners, their reasons for owning forest land, and their views about timber harvesting, forest management, and recreational uses of their land. Results of this study used in conjunction with the recent Maine forest resource data (Powell and Dickson 1984) provide valuable information to a number of user groups. Ownership information will be useful to public agencies in planning and evaluating forestry programs, to forest industry in procuring timber, and to others interested in learning more about Maine's diverse forest-land owners and in following trends in land tenure.

Landowners have legal rights and responsibilities relating to forest land. Rights include those to purchase or sell land, to determine land use, and to decide the type and level of investment. Along with these rights has evolved a tradition of stewardship. This tradition fixes responsibility for decisionmaking, establishes a claim on income accruing to land, and determines how wealth in land is distributed (Lewis 1980, Wunderlich 1978).

Who or what is an ownership unit?[1] Owners may be persons, combinations of persons, or legal entities such as corporations, partnerships, clubs, and trusts. An ownership unit has control of a parcel or group of parcels of land. Our sampling frame is drawn from the land itself (parcel by parcel), and the owner of record (the apparent owner) is determined. A questionnaire is mailed, and finally an individual responds who has control of an amount of land (not exclusively the parcel sampled).

The results presented here have been statistically expanded from a sample to estimate the total population of private ownership units and the acreage they own. Users are advised to read the definitions of terms and the discussion of the sampling design and sampling errors in the Appendix where tables support the conclusions in the text.

[1] This term and others are defined in the Appendix.

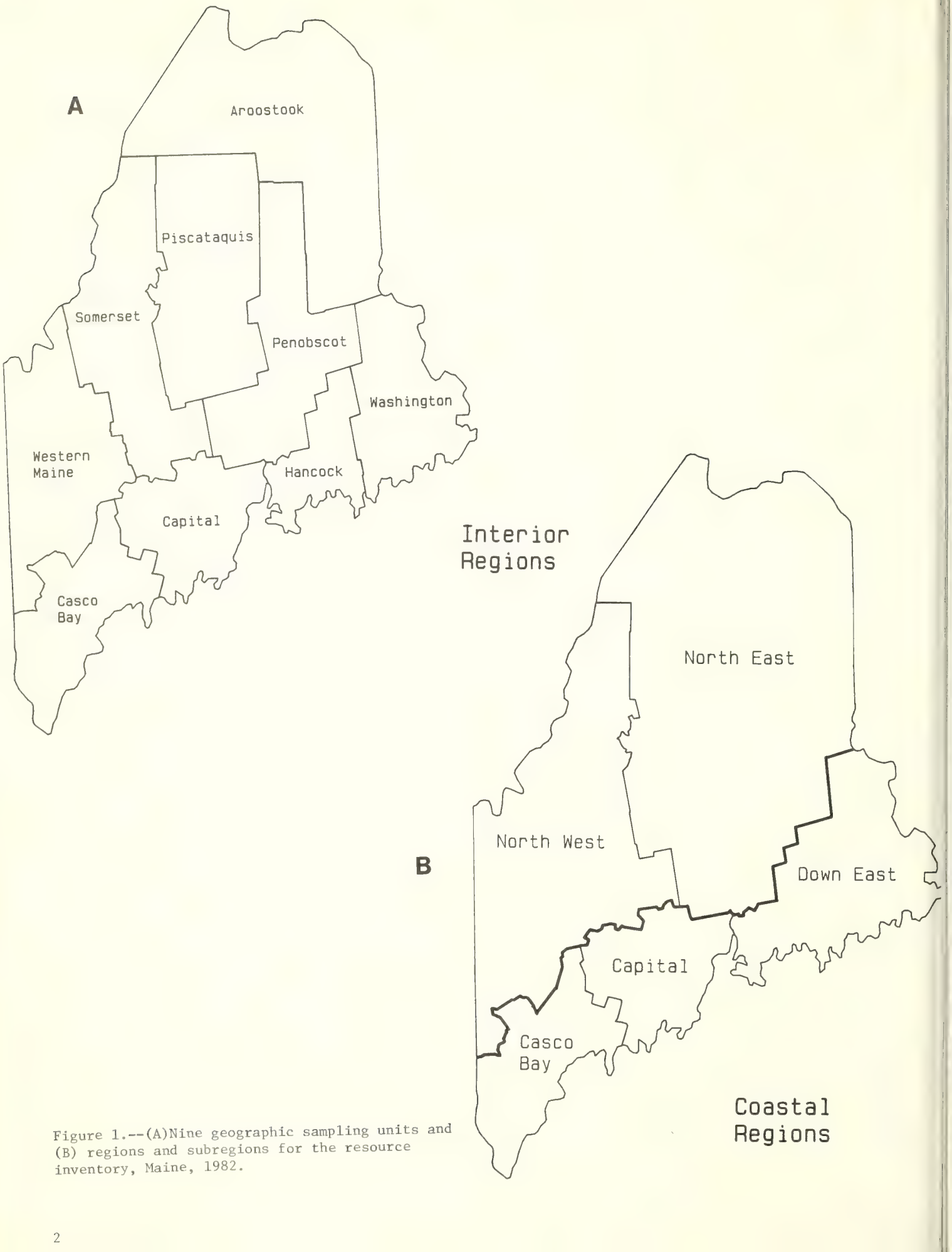

Figure 1.--(A)Nine geographic sampling units and (B) regions and subregions for the resource inventory, Maine, 1982.

Nine geographic units

To present meaningful data on other than state totals, the state was divided into nine geographic sampling units (Fig. 1A) for the resource inventory. These units consist of one to four counties. Each unit was delineated to be as homogenous as possible in the resource base but not in ownership characteristics. All but one of the sampling units contain more than 1 million acres of timberland. To best describe various aspects of the private ownership situation in Maine, several units were combined into regions and subregions with sufficient numbers of responses to ensure confidentiality of individual responses and reliable levels of sampling errors. The Coastal region has four of the nine units combined into three subregions: Down East (Hancock and Washington), Capital, and Casco Bay. The Interior region has five units combined into two subregions: North East (Aroostook, Penobscot, and Piscataquis) and North West (Somerset and Western Maine) (Fig. 1B).

A unique system of forest-land ownership and management

A substantial area of forest land in the "unorganized" northern portion of the State is held by a diverse group of owners who hold a "common and undivided interest" in the land. This means that several owners may own a portion of a particular township, yet no boundaries have been laid out and none of the owners can identify their portion on the ground. Over the years this system has worked well and the cooperation between diverse owners, including state agencies, has at times been excellent. Firms that assume the owners role in forest management and other management decisions regarding the land were formed for some nonindustrial holdings. The land manager determines the harvest schedule. The proceeds from the sale, less operating costs, are then divided among the owners in accordance with their share in ownership. This allows many small common and undivided ownerships to be managed as though they were a single large ownership. Another management alternative has been for common and undivided ownerships to allow one of the owners, possibly a large industrial firm, to negotiate a management agreement with the minority owners that defines objectives and responsibilities (Ferguson and Kingsley 1972). There seems to be some movement toward consolidation of lands into fee ownership since 1972, but this study did not attempt to measure this trend.

The approach this study took to clarify the complex ownership situation where common and undivided ownerships exist was to first identify from public records the largest owners in terms of total acres and the principal management firms. The owners with more than 25,000 acres and the principal management firms were then asked to complete questionnaires for the ownerships that had been identified. In this way, data were obtained for all ownership units greater than 25,000 acres. Responses from ownerships smaller than 25,000 acres obtained from the management firms were treated as samples in the unit where the inventory plot was located. For example, an undivided estate in the "unorganized" portion of the state was then treated as a single ownership unit. Although management is practiced on large undivided estates, they are not considered to be forest-industry lands because neither the owners nor the management organization operates a wood-processing plant, even though some of these lands have been managed for more than 100 years.

Ownership classifications

Public ownership

Publicly owned timberland in Maine totals 690,100 acres (Table 1). In addition, there are 272,000 acres of publicly owned productive reserved and 11,000 acres of unproductive reserved forest land. National Forest and other federal timberland total 64,800 acres. Acadia National Park has 29,900 acres of productive reserved forest land. State owned timberland totals 354,200 acres. Baxter State Park has 161,300 acres of productive reserved forest land, and 35,500 acres of productive reserved forest are included in the Allagash Waterway. County and municipal ownerships have 114,000 acres of timberland. Indian lands, both fee and trust lands, are included in the public timberland total.

Private ownership

Forest industries own 8,016,900 acres of timberland in Maine. In no other state do the forest industries own such a large share of the timberland base. Only in the Capital and Casco Bay units do forest industries own less than 40 percent of the timberland base (Fig. 2). In Somerset county, more than 70 percent of the timberland base is industry owned.

The nonindustrial private timberland is divided into farmer-owned and miscellaneous private (which includes individual, corporate, and other). The farmer-owned category has an estimated 1,306,500 acres of timberland. Within miscellaneous private, individuals have 4,003,900 acres, corporations have 572,400 acres, and others (undivided estates, partnerships, and trusts) have 2,470,400 acres of timberland.

The Forest-land Ownership Units

An estimated 180,900 private ownership units hold 16,370,100 acres of timberland in Maine. Fifty-six percent of these ownership units hold less than 10 acres of forest land each and collectively control only 2 percent of the private forest land. At the other end of the distribution, 300 ownership units holding 5,000

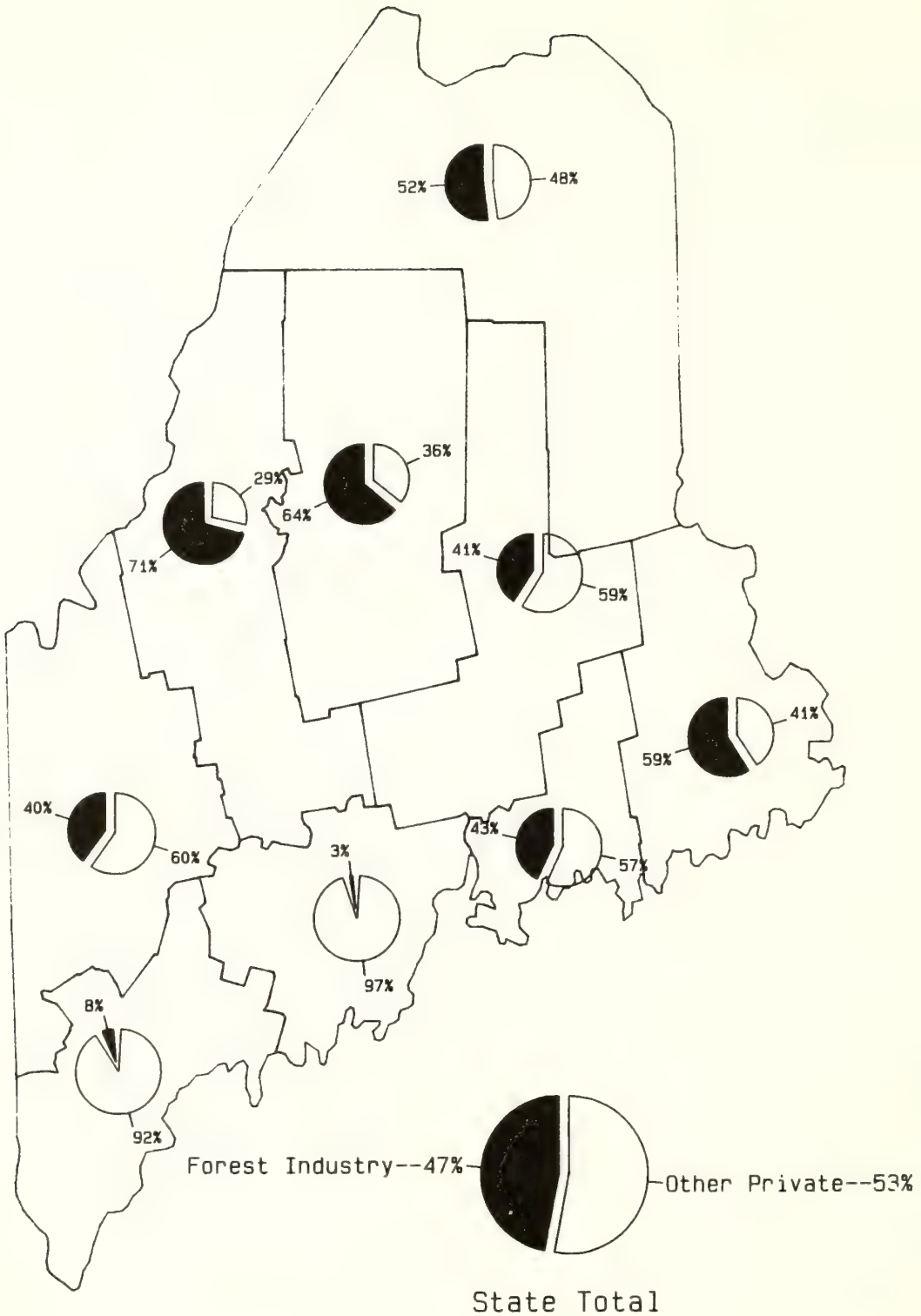

Figure 2.--Percentage of forest land owned by forest industry, by units, Maine, 1982

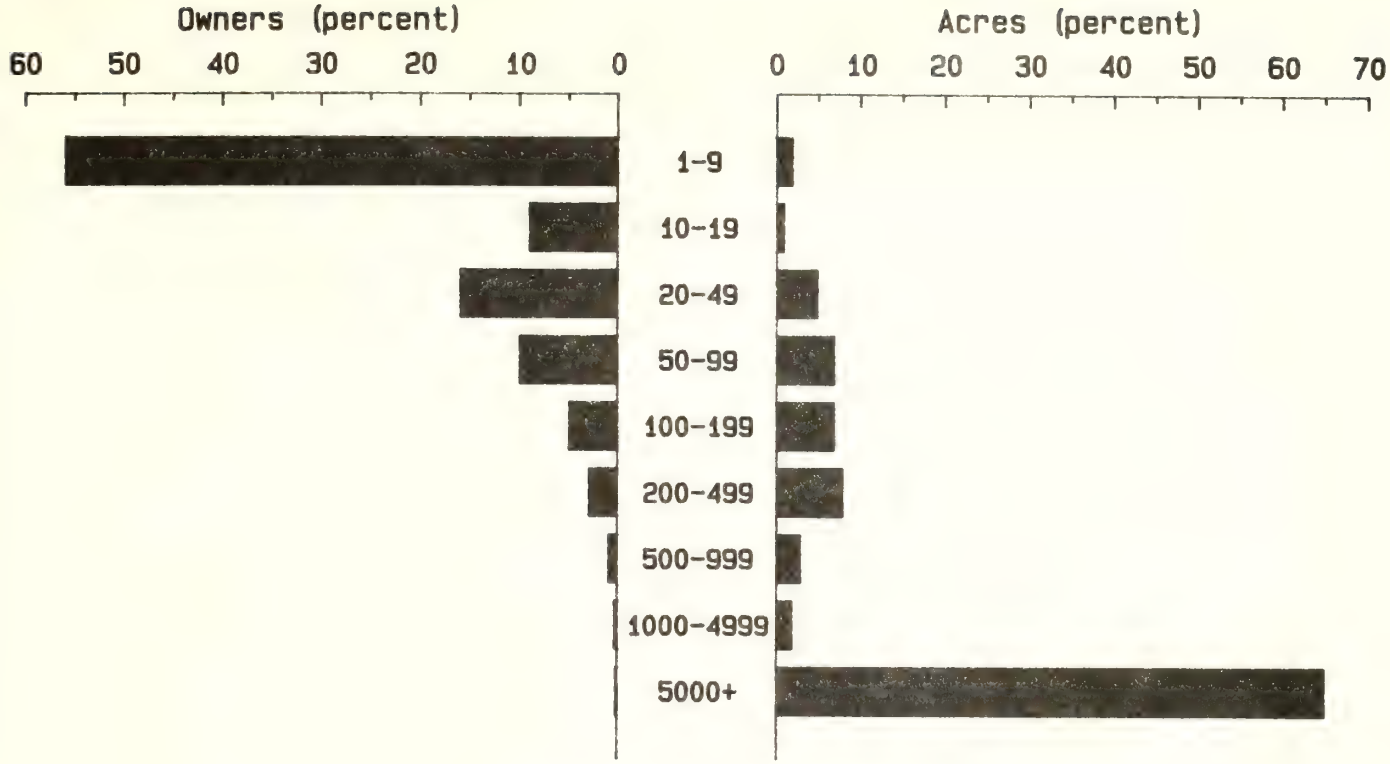

Figure 3.--Distribution of private ownership, by size class of ownership, Maine, 1982

or more acres each own 65 percent of the privately owned timberland (Table 2, Figure 3). The differences in distributions of the number of ownership units and ownership categories are important at the region and subregion level within Maine.

Coastal Region

The Coastal region has 4,516,800 acres of private timberland owned by 123,100 owners (Table 3). This region has the largest concentration of small forest ownerships. An estimated 74,600 owners with less than 10 acres of forest land each control 208,600 acres of forest land (5 percent of the private timberland in the region). Less than one-third of the region's timberland is in ownerships of greater than 5,000 acres and most of this is in the Down East subregion. This region also contains most of the state's population.

Interior Region

The Interior region has 11,853,300 acres of private timberland owned by 57,800 private owners. This region has the largest concentration of large ownerships. An estimated 600 owners with more than 1,000 acres of timberland each, have 9,347,000 acres of forest land. Most of the forest-industry land in Maine, 6,678,800 acres, is in this region. More than 80 percent of the spruce/fir type group in Maine is in this region.

Form of Ownership

Ownership units can also be classified by form of ownership. Ninty-two percent of the private ownership units are individual and joint ownerships (excluding partnerships, undivided estates, corporations, and so on) collectively holding 5,135,900 acres of timberland (Table 4). One percent of the ownership units is in corporations that hold 8,568,100 acres of timberland. The remaining 7 percent of the ownership units with 2,666,100 acres of timberland are partnerships, undivided estates, clubs, and associations.

The distribution by size class of ownership for the individual and joint ownerships differs from the corporate and other owners. The individual and joint ownerships have a larger percentage of their area in the smaller size classes. For example, 61 percent of the area owned by individuals is in ownerships of 50 to 500 acres of timberland, while 97 percent of the corporate acreage is in ownerships of more than 5,000 acres, and the other owners have 81 percent of their acreage in ownerships of more than 5,000 acres.

Corporate ownership

Corporations engaged in timber based industries hold 7,872,200 acres of timberland in Maine (Table 5). There is an additional 144,700 acres of unincorporated forest industry land. Some firms consider themselves as forest industry and manage their lands primarily for timber production but lack primary processing facilities; they are included here as real estate companies. Real estate companies hold 465,200 acres of timberland.

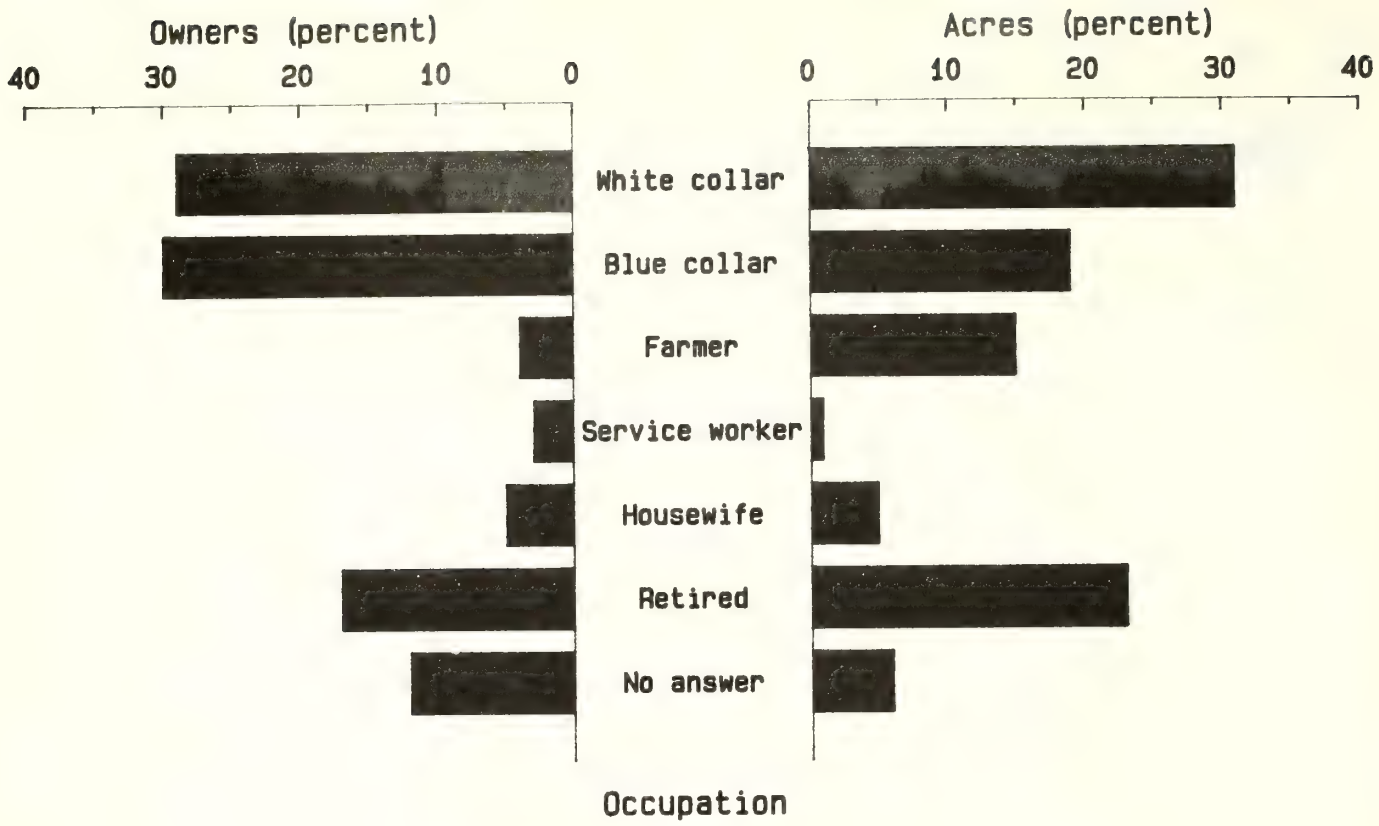

Figure 4.--Distribution of individual ownerships, by owner occupation, Maine, 1982.

An estimated 200 corporate farms own forest land in Maine and they have 123,500 acres of forest land (less than 10 percent of the farmer-owned timberland). Corporate farms could well increase in the years ahead as more sole proprietors and families incorporate to take advantage of income and inheritance tax benefits (Lin et al. 1980).

The remaining corporate acreage is held by nonindustrial businesses, industrial firms, recreational developments, educational institutions, public utilities, and other corporations. They control 107,200 acres of forest land.

Characteristics of Individual Forest-land Owners

Demographic characteristics of individual forest-land owners can be related to their diverse abilities to practice forest management, to respond to incentive programs, and to harvest in the future. Many studies have attempted to predict ownership response from owner characteristics such as occupation, age, education, and income. In addition, such variables as residence, date of acquisition, and number of tracts owned have been explored as predictors of harvesting intention (Kingsley 1976, Kingsley and Birch 1977).

There is no significant difference in the acreage distribution by occupation groups between the Interior and Coastal regions of Maine (Table 6). Thirty-one percent of Maine's individually owned forest land (1,598,500 acres) is held by professionals, executives (including business owners), and white collar workers Fig. 4). These owners own forest land primarily for reasons other than timber production, though they are not generally opposed to timber harvest. It is felt that this group of owners have a high potential to practice timber management on their lands if properly motivated (Marler and Graves 1974).

Retired owners account for 17 percent of the individual owners, they control 23 percent of the individually owned forest land. Many owners in this group do not seem to have sufficient financial resources available to invest in forest management. Thirty-two percent of the owners 65 years old and older have incomes under $10,000 per year and conversely 30 percent of the owners with incomes under $10,000 per year are 65 years old or older.

An estimated 6,500 individual owners, whose primary occupation is farming, own 751,900 acres of forest land in Maine. In addition, 200 corporate farms have 123,500 acres of forest land. Nearly one-third of the farmer-owned land is owned by part-time farmers. Full-time farmers including corporate farms have an average of 130 acres of forest land per owner, while part-time farmers have an average of 41 acres of forest land per owner. The 1982 Census of Agriculture estimated that there were 5,461

farms with 707,404 acres of woodland in Maine or 129 acres of woodland per farm (U.S. Bureau of Census 1984). There is no significant difference between the two estimates.

An estimated 49,000 craftsmen and other blue collar workers represent 30 percent of the individual owners, and they collectively hold 19 percent of the individually owned forest land. Housewives and service workers represent 8 percent of the individual owners with 6 percent of the individually owned forest land. Owners that did not answer the occupation question make up the remaining 12 percent of the individual owners; they hold 6 percent of the individually owned forest land.

When we look at intention to harvest by individual owners, 41 percent with 67 percent of the forest land owned by individuals intend to harvest trees from their land in the next 10 years (Table 7). Owners who intend to harvest at sometime in the future but with indefinite plans represent an additional 43 percent with 24 percent of the forest land owned by individuals.

Other demographic information (gathered by this study) provides us with a general description of Maine's individual forest-land owners (Tables 8 to 11). Sixty-one percent of the owners are over 45 years old, and 18 percent are over 65. Over half of the owners are educated beyond high school, while only 7 percent have 8 years or less of formal education. The median income of those responding to our survey was between $15,000 and $20,000 per year. Fifty-four percent reported spending their first 12 years in a rural area or on a farm.

Indicators of Management Potential

Because trees take a long time to grow, tenure of ownership is an important indicator of forest management potential. Most forest industries first acquired a portion of their forest land before 1900 (Table 12). This is not true with other ownerships: the farmer-owned lands were well distributed by decade of acquisition from 1940-79, the miscellaneous individual group had over 50 percent acquired from 1960-79, and the miscellaneous other group had 50 percent acquired before 1940.

Six percent of the forest land owned by individuals was acquired since 1980, 29 percent in the 70's, 23 percent in the 60's, 18 percent in the 50's, 19 percent before 1950, and 5 percent at dates unknown (Table 13, Fig. 5). For all other owners, 3 percent was first acquired since 1970, 8 percent in the 60's, 2 percent in the 50's, 11 percent in the 40's, 62 percent prior to 1940, and 14 percent at dates unknown.

Where an owner resides in relation to a forest property and how many scattered tracts an owner has may be important to people who deliver various types of forestry assistance. Travel

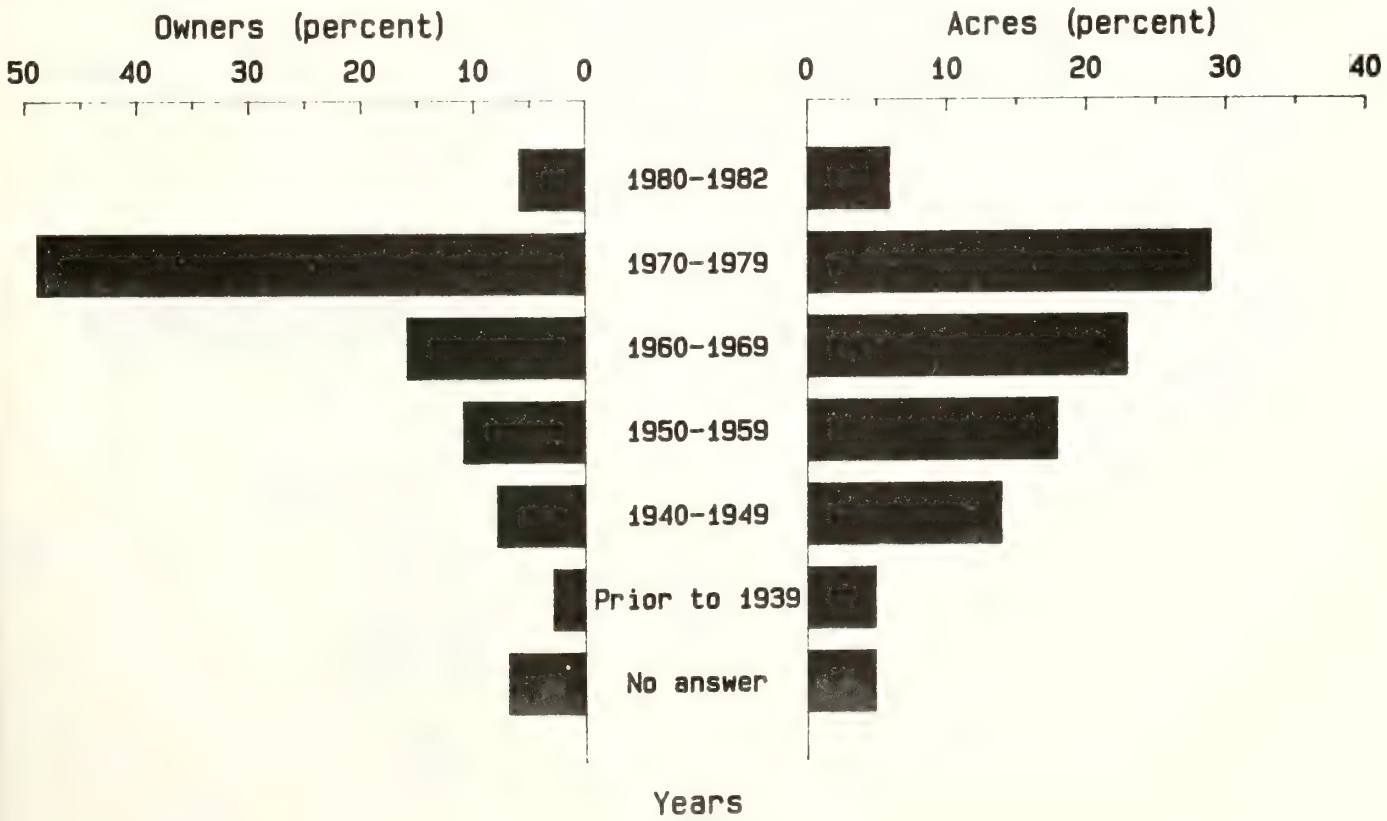

Figure 5.--Distribution of individual ownerships, by year owner first acquired woodland, Maine, 1982.

costs are high and budgets are restricted. An estimated 66 percent of the owners live on the tract or have business headquarters within 1 mile of their nearest tract. Their units hold 66 percent of the forest land (Table 14). Seventy-two percent of the ownership units own single tracts; they make up only 16 percent of the forest land in Maine (Table 15). Many of the corporate ownerships are included in the 2 percent of the ownership units that have 6 or more tracts and 67 percent of the forest land.

An indication of dispersion is obtained by combining data on number of tracts with distance from nearest and farthest tract (Table 16). For example, of the 49,800 ownership units with more than one tract, 2,400 units have owners living more than 100 miles from their nearest tract and 16,400 have owners living more than 100 miles from their farthest tract.

Owner Objectives

Since forest lands produce many benefits for owners, it is not surprising that landowners express diverse reasons for owning forest lands. Not all the potential benefits from forests are competitive with each other, some benefits can be produced with no effect on others, and some benefits even increase when another is produced. The owners sampled in this study were asked their primary reasons for owning forest land, which benefits were most important in the last 5 years, and which were expected to be most important in the next 5 years.

About 2 percent of the private ownership units in Maine (including forest industry) gave timber production as their primary reason for owning woodland (Tables 17 to 20, Fig. 6). An additional 3 percent of the owners gave timber production as their second reason. Together these two groups own 11,726,300 acres of forest land, this is 72 percent of Maine's private timberland.

Among the benefits received in the last 5 years and expected in the next 5 years, income from the sale of timber was ranked most important by 4 percent of the ownership units (Tables 21 to 23). These owners own 54 percent of the private timberland in Maine (nearly 8.9 million acres). There are fewer acres owned by people receiving income from the sale of timber than owned primarily for timber production because income from the sale of timber may occur infrequently throughout the life of the stand of timber. The many ownerships in Maine that harvest on an annual basis contribute to over half of the acreage being owned by people receiving income from the sale of timber in the last 5 years.

An estimated 36,200 ownership units (20 percent) have farm or domestic use as their primary reason for owning forest land. A large portion of the 1,298,900 acres in these ownerships are

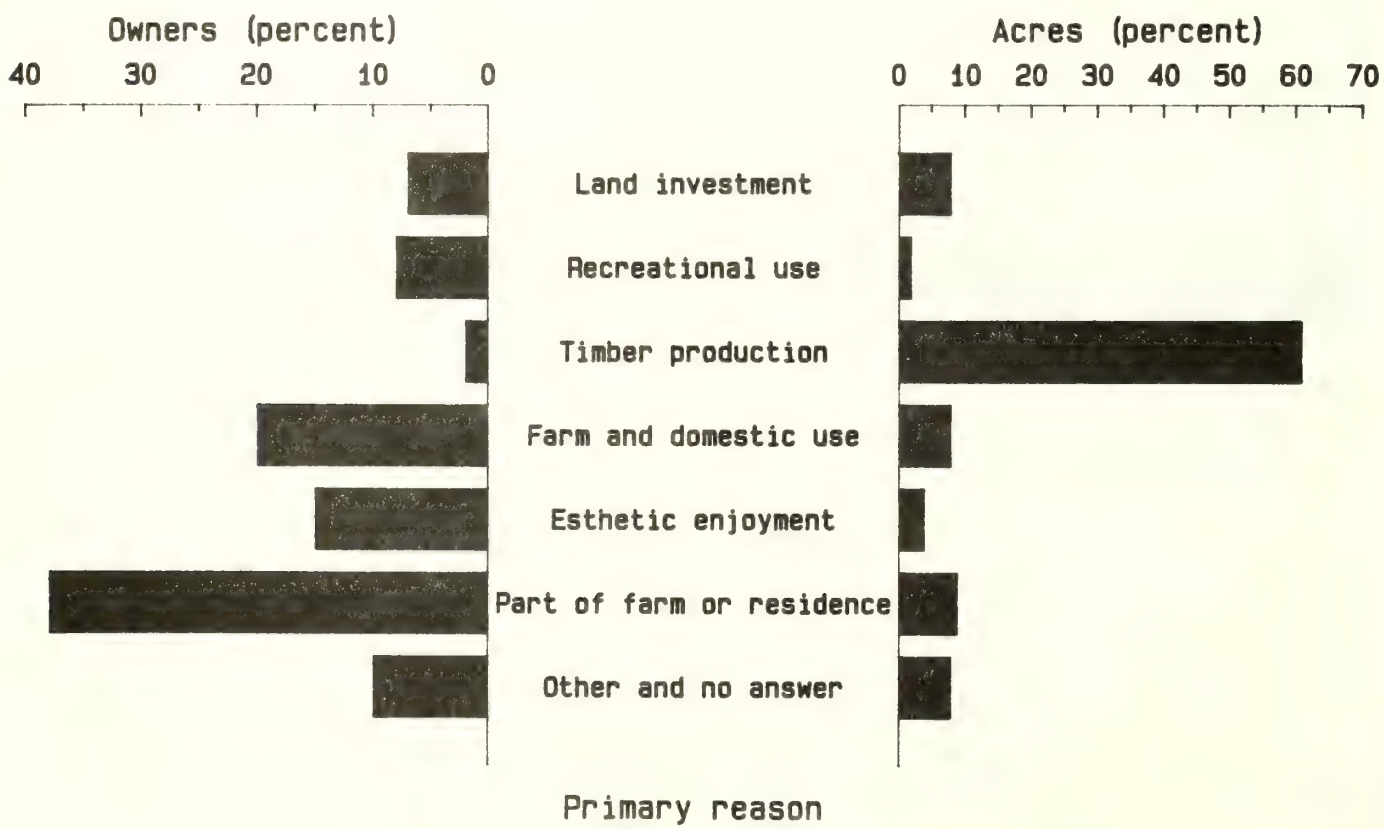

Figure 6.--Distribution of private ownerships, by primary reason for owning forest land, Maine, 1982.

thought of as farm woodlots. These lands provide fence posts, firewood, and a portion of the commercial roundwood harvest.

Among the benefits received in the last 5 years and expected in the next 5 years, farm and domestic use was ranked most important by more than one-quarter of the ownership units. These owners have more than 1.6 million acres of timberland in Maine. With the current interest in fuelwood, these figures are not surprising.

More than one-third of the ownership units gave "residence" or "part of the farm" as their primary reason for owning forest land. These people own 1,578,300 acres or 7 percent of the private timberland. An additional 15 percent own their forest land for esthetic enjoyment, and they own 4 percent of the private forest land. Esthetic enjoyment was the most frequently mentioned benefit that owners derived over the past 5 years. Statewide, 46 percent of the owners, holding 8 percent of the private forest land, felt this was the most important benefit they received. In the next 5 years, 42 percent of the ownership units, with 8 percent of the forest land, expect esthetic enjoyment to be most important.

Eight percent of the ownership units owning 2 percent of the forest land gave recreational use as their primary reason for owning forest land. Most forest ownerships in Maine are available for some type of recreational use either by the owner, family and friends, or by the public.

Land values have shown increases over time and land investment is often thought of as a hedge against inflation. An estimated 12,900 owners (7 percent) with 1,286,000 acres (8 percent) gave land investment as their primary reason for owning forest land. About 15,600 ownership units felt that land-value increase was their most important benefit in the last 5 years and 18,900 ownerships expect it to be their most important benefit in the next 5 years. The remaining 10 percent of the ownership units gave other reasons for owning or did not answer.

Who Harvests Timber and Why?

An estimated 95,600 ownership units (53 percent) have harvested trees from their land in the past; they own 15,143,100 acres, 92 percent of the private forest land. The size of ownership unit does influence what products are harvested and the reason for harvest. This influence will be discussed later in the "Products Harvested" section.

What motivates owners to cut? The reason most often given by nonindustrial private landowners was that the timber was needed for their own use (Tables 24 and 25). Most of these owners own fewer than 50 acres of forest land. Many of these owners are cutting firewood for their own use.

An estimated 11,100 owners harvested because they felt their timber was mature. These owners have 1,675,400 acres of timberland, 11 percent of the forest land owned by harvesters (Fig. 7). Most of these owners own more than 50 acres of forest land. The owners with more than 50

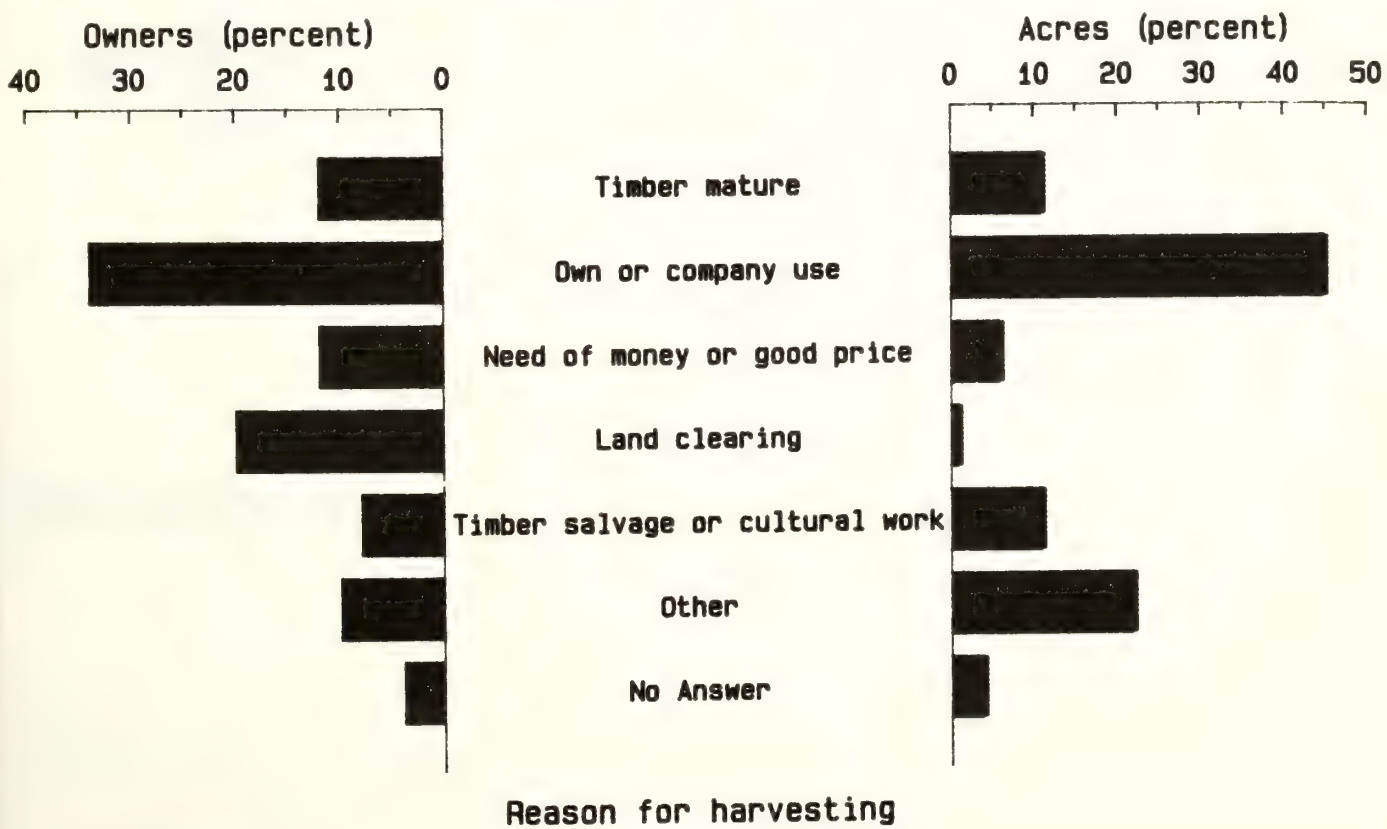

Figure 7.--Distribution of private ownerships who have harvested timber, by reason for harvesting, Maine, 1982.

acres of forest land are likely to have harvested sawlogs or pulpwood from their land.

Nearly all of the forest industry ownerships harvested for company use or because the timber was mature. Most of the forest industry ownerships are harvesting sawlogs, pulpwood, and firewood from their lands.

Twelve percent of the harvesters indicated that they harvested because they needed the money or they were offered a good price. These two reasons are quite similar and often overlap. The offer of a "good price" on the part of the buyer often meets the "need" for a certain amount of money on the part of the seller.

The remaining harvesters did so for land clearing, timber salvage, cultural treatments and for other reasons. The primary products of timber salvages and cultural treatments were pulpwood and fuelwood. Much of this material would not have been utilized in the past and many cultural treatments might not have taken place without markets for these products.

Why Many Owners Have Not Harvested

Forty-seven percent of the private forest-land ownership units in Maine have never harvested timber. These ownership units hold 1,227,000 acres, 8 percent of the privately held timberland. Many of the owners who have not harvested in the past indicate that they may harvest at sometime in the future.

The reason most often given for not harvesting was that the timber was of poor quality (Tables 26 and 27, Fig. 8). Twenty-five percent of the forest land held by nonharvesters (308,000 acres) was not harvested because the owners believed the timber quality was too poor. An additional 14 percent of the forest land is owned by people who did not harvest because of low volumes per acre.

The next most frequently cited reason for not harvesting was that the owner had insufficient area. The 19,800 owners who feel they have insufficient forest land have 84,500 acres of forest land for an average of fewer than 5 acres perowner. The owners in these circumstances are not likely to find commercial markets for their trees unless individual trees are of high value or the land is near an active fuelwood market.

Timber immature, price too low, and no market were reasons given by 2,100 of the nonharvesters holding 8 percent of the acreage owned by nonharvesting owners. Many of these ownerships intend to harvest in the future, perhaps when the timber matures, prices go up, or market

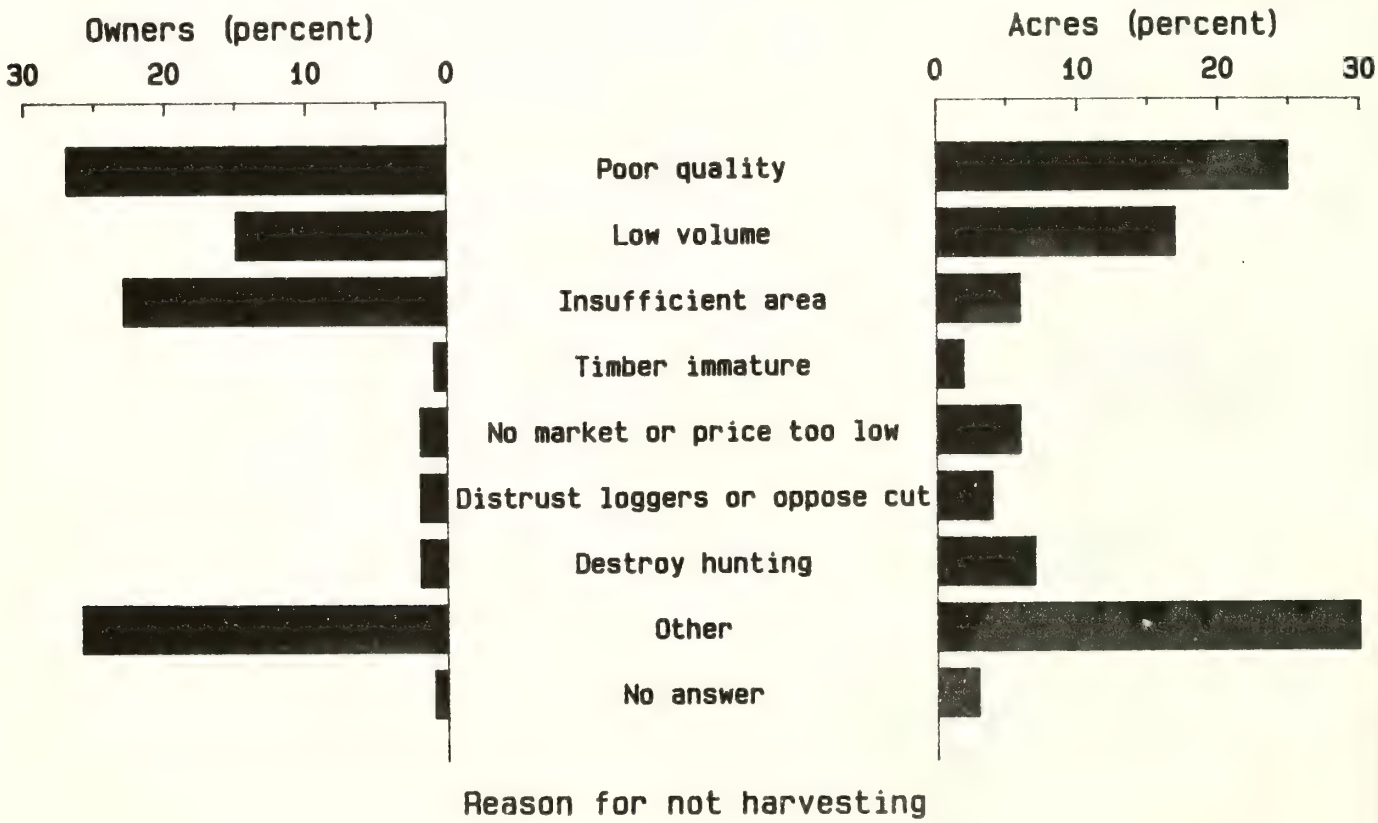

Figure 8.--Distribution of private ownerships who have not harvested timber, by reason for not harvesting, Maine, 1982.

conditions improve. Distrust of loggers and opposition to timber harvesting were reasons given by an estimated 800 owners with 4 percent of the forest land held by nonharvesters.

Two percent of the nonharvesters believe harvesting would destroy hunting values, they have 7 percent of the acreage. The belief that timber harvesting destroys the value of the land for hunting is generally not based on fact. Timber harvesting can add habitat diversity to the forest, which is beneficial to many species of wildlife (Shaw 1970).

Other reasons for not harvesting include future sale of the land, that the land was in an estate, and that harvesting would destroy the scenery. These three reasons for not harvesting were given by an estimated 15,800 owners with 12 percent of the forest land held by nonharvesters. The remaining 7,900 owners gave other reasons or did not answer the question, they have 21 percent of the forest land held by nonharvesters.

Predicting Timber Harvesting Behavior

What an owner will do with his or her forest is influenced by many factors; landowner motives, objectives, and constraints all influence timber harvesting activity (Kurtz and Lewis 1981). In addition, people plan their actions for different time periods. We asked owners not only if they have cut and if they intend to cut trees but also when they intend to cut. These attitudes can change over time.

An estimated 40 percent of the ownership units expect to harvest trees from their land in the next 10 years, they control 88 percent of the private timberland in Maine (Table 28). An additional 41 percent of the ownership units intend to harvest at sometime in the future but are indefinite as to when the harvest would take place. The owners with indefinite plans to harvest own 9 percent of the timberland in the state. The percentages of owners in these two categories differ significantly between the Coastal and Interior regions of the state (Tables 29 and 30). The percentage of acreage by intention to harvest categories also differs between the two regions (Fig. 9). The overall importance of timber to the economy of the state of Maine may be responsible for the small percentage of the acreage owned by those who never intend to harvest. Ninty-two percent of the land in the Interior region is owned by ownership units that intend to harvest in the next 10 years. The concentration of forest industry lands and those lands controlled by timber management companies is a major factor in the high percentage of land immediately available for harvest.

Previous studies (Kingsley 1976, Kingsley and Birch 1977) point to three things that characterize potential timber harvesters: similarity of primary benefits expected in the

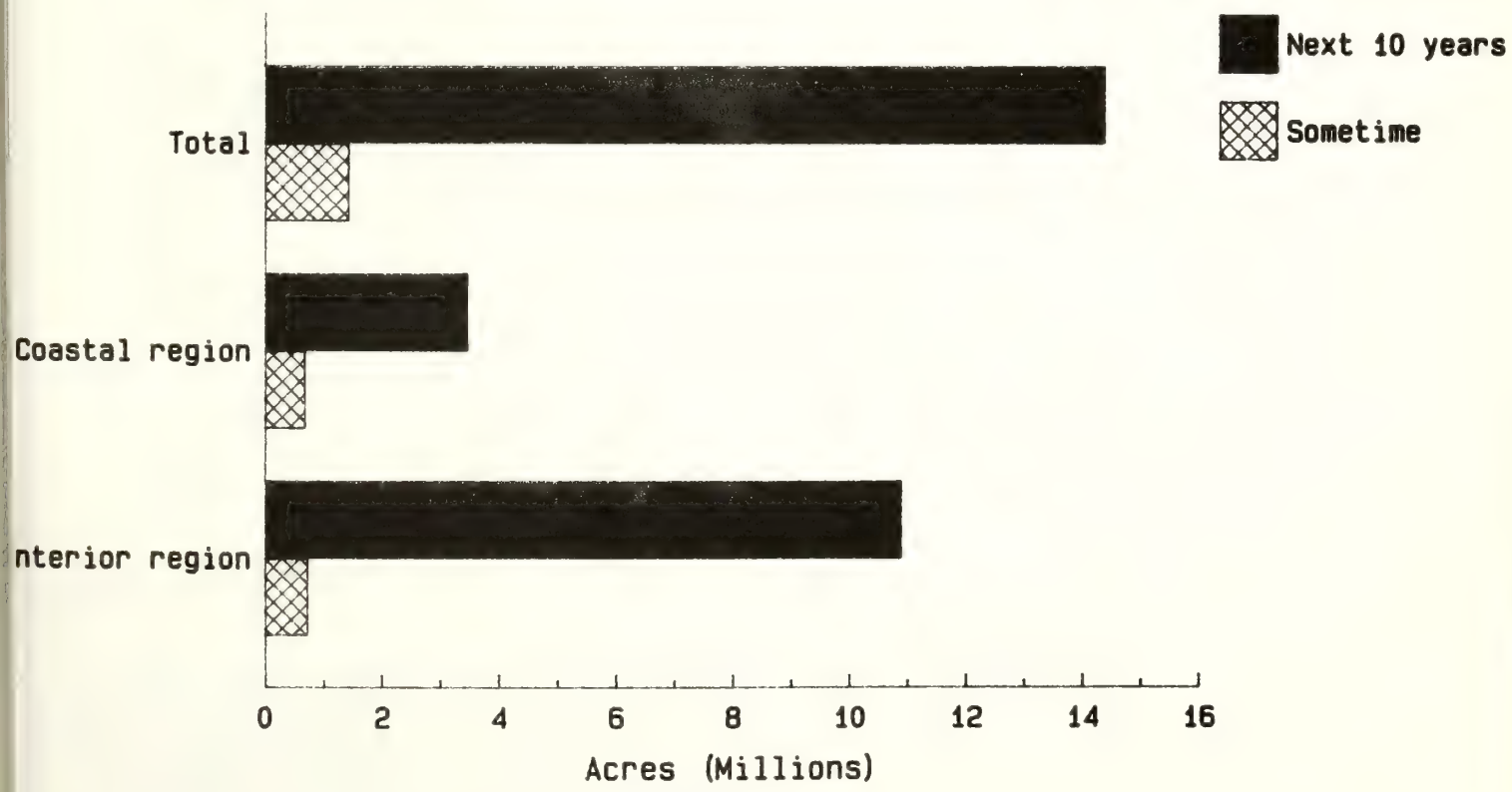

Figure 9.--Distribution of private forest land owned by expected time of harvest, Maine, 1982.

next 5 years (Table 22), the size of ownership (Table 31), and their primary reason for owning woodland (Table 19). Seventy-eight percent of the owners who expect income from timber to be their most important benefit in the next 5 years plan to harvest in the next 10 years. Eighty-eight percent of the owners with more than 500 acres of forest land intend to harvest in the next 10 years. Finally, 75 percent of the owners who gave timber production as their primary reason for owning woodland plan to harvest in the next 10 years.

How Much Timber is Available

The answer to the question: "How much timber is available from private forest land?" is influenced by how one defines availability and the assumptions from which the estimate is developed. Changes in industrial technology, market conditions, and the general social atmosphere limit the credibility of a long-range estimate.

We asked sample owners two specific questions to aid in estimating timber availability: "When do you plan to harvest timber?" and "What percentage of your woodland do you believed that you will never harvest timber from?" We assumed that as many ownership units will harvest in the next 10 years as said that they would. We further divided the ownership units into four groups: forest industry, nonindustrial private forest ownerships (NIPF's) over 500 acres, NIPF's with 50 to 499 acres, and NIPF's with fewer than 50 acres of forest land.

The estimated 300 forest industry ownerships hold 8,016,900 acres of timberland in Maine. These owners indicate that 98 percent or 7,830,900 acres are available for timber harvesting (Table 48). Current average annual growth for Maine's timberland is estimated to be 27.64 ft^3 per acre per year (Powell and Dickson 1984). If we assume that this growth is available for harvesting, 216,446,076 ft^3 of wood will be available each year from forest industry lands.

About 1,500 of the NIPF's holding more than 500 acres of timberland plan to harvest timber in the next 10 years. These ownership units hold 3,234,200 acres of forest land and indicate that 98 percent or 3,155,300 acres are available for timber harvesting. Again if we assume that these owners harvest average annual growth from their forest land, 87,212,492 ft^3 of wood will be available each year.

We estimate that 22,400 NIPF's holding between 50 and 499 acres plan to harvest in the next 10 years. These owners indicate that 2,200,500 acres of the 2,450,600 acres or 90 percent of their forest land is available for timber harvesting. If we use the same assumption of growth, 60,821,820 ft^3 of wood will be available each year.

The remaining 48,000 ownership units that intend to harvest in the next 10 years own less than 50 acres of forest land. These ownerships indicate that 562,000 acres are available or 84 percent of their forest land is available for timber harvesting. That would give an estimate of 15,533,680 ft^3 of wood available each year.

In total, 380,014,068 ft^3 of growing-stock timber should be made available each year by owners who plan to harvest timber during the next 10 years. In 1981, 368,564,000 ft^3 of timber were removed from growing stock for products in Maine (Powell and Dickson 1984). This suggests that there is a slim margin of timber volume that will be available for harvesting. The slight excess might become a deficit if growth declines or if harvesting activities increase at the same rate they have over the last decade. This also does not address the question of softwood availability, which is of great importance to Maine's forest industry. Also, removals for fuelwood and removals from the timberland base as a result of change in land use are only partially accounted for.

The harvesting of 368,564,000 ft^3 of growing stock trees for roundwood products was only 66 percent of the total harvest in 1981. An estimated 108,140,000 ft^3 of nongrowing-stock material was harvested for fuelwood. In addition, 85,801,000 ft^3 of nongrowing-stock material was used for industrial products. Many question if this level of harvesting of nongrowing-stock material can be sustained. It could well be that some of this harvesting activity will shift to growing-stock sources. The 73,400 ownership units that intend to harvest at some time in the future holding 1,446,200 acres of forest land feel that 86 percent of their land is available. Their growth on growing stock is producing an additional 34,533,416 ft^3 of available timber each year. Other sources of material that could be burned as firewood are 31,818,000 ft^3 of growing-stock logging residues and 6,742,000 ft^3 of unused growing-stock material from land clearings. This analysis suggests that even with the careful use of the material described an adequate volume of timber may not be available for Maine's forest industry, in the near term. In particular, there may be shortages of trees of certain species and sizes in some regions of the state. However, the forest industries have been very successful in finding substitutes for material shortages in the past.

Forest Management on Private Lands

Harvesting Practices

An estimated 64,000 landowners who harvested timber chose the area or tree to be harvested (Table 32). These owners control 2,626,500 acres, 17 percent of the privately owned forest land held by harvesters. Owners who chose the trees for harvest with the assistance of a

forester own 317,300 acres, and owners who chose along with the buyer own 1,262,400 acres of timberland.

An estimated 6,700 ownerships involved a forester in choosing the area or trees to be harvested. These ownerships control 10,045,900 acres of timberland, 66 percent of the land held by harvesters. A forester alone selected the timber for harvest on ownerships of 7,289,500 acres, most of this acreage is in forest-industry ownerships.

Ten percent of the harvesters allowed the buyer to select the timber to be harvested from their land, and these owners have 549,600 acres of timberland. An additional 9 percent of the owners chose the timber along with the buyer or had the buyer choose the timber along with a forester, these owners control 3,701,500 acres of forest land.

Diameter-limit cutting, where only trees above a certain diameter are removed, was the method of selection used by 15,500 owners with 3,553,600 acres of timberland. This method was frequently used when the owner was involved in the timber selection. An estimated 2,074,900 acres are owned where foresters used this method of harvest. This method is easy to administer and allows the landowner to check what was cut without marking individual trees before harvest. It should be pointed out that diameter limit cutting is a dysgenic practice and could decrease growth over the length of the rotation.

Selection, where only preselected trees are removed, was used by 16,600 ownership units with 1,285,900 acres. This method was frequently used on small ownerships where the landowner chose the trees to be harvested. When a forester chose the timber by selection, he or she was likely to have been operating on an ownership of more than 100 acres of forest land.

Clearcutting was used on 8,600 ownerships with 474,300 acres of forest land. An estimated 20,000 owners harvested trees in conjunction with land clearing, they own 277,700 acres of forest land. Some landowners specified various other methods such as salvage operations or harvest of a particular species, and some owners did not answer the question. The remaining owners used a combination of methods, many of these were large ownerships that employ foresters. The ownerships that used a combination of methods have 7,159,900 acres of forest land, 47 percent of the forest land owned by harvesters.

Products Harvested

Pulpwood makes up over half of the annual roundwood harvest in Maine, nearly 300 million ft^3 of pulpwood was harvested in 1981 (Powell and Dickson 1984). It is not surprising that almost 13 million acres are owned by owners who have harvested pulpwood, more acreage than for any product (Table 33). This land is owned by 43,400 owners, 45 percent of the harvesting owners. Size of ownership seems to have a direct influence on what products are harvested. In the less than 50-acre nonindustrial private landowner class, fewer than 50 percent of the harvesting owners cut pulpwood from their land. In the greater than 500-acre nonindustrial private landowner class, two-thirds of the harvesting owners with 2,958,800 acres of forest land (90 percent) have harvested pulpwood.

Sawlogs are second in terms of volume harvested annually in Maine. Nearly as much acreage is owned by sawlog harvesters as owned by those who have harvested pulpwood, 12,784,200 acres of forest land. All of the forest-industry ownerships that harvested from their lands harvested some sawlogs from their lands. Among the nonindustrial private owners, those with more than 500 acres of forest land were most likely to have harvested sawlogs, followed by the 50 to 500-acre ownerships and lastly the owners with less than 50 acres of forest land.

Fuelwood was third in terms of volume harvested annually, but most of this volume came from nongrowing-stock sources. Fuelwood for personal use was harvested by an estimated 69,300 owners, 72 percent of the owners who have harvested trees from their land. These owners own 8,219,700 acres of forest land, 54 percent of the forest land owned by harvesters. Nonindustrial owners with 50 to 499 acres of forest land were most likely to harvest fuelwood for their own use. Among the owners with less than 50 acres of forest land, fuelwood for personal use was the product most often harvested. Many who harvested firewood for personal use cut it in conjunction with the harvest of another product such as pulpwood, sawlogs, fuelwood for sale, or some other industrial product. Forty-six percent of the owners who harvested, cut more than one product from their land. These owners have 90 percent of the acreage owned by harvesters.

Forestry Assistance

When asked whom they would contact for forestry assistance, 54 percent of the ownership units said they did not know and another 16 percent did not respond to the question. Together these owners hold 33 percent of the privately owned forest land (Table 34).

Nineteen percent of the landowners have sought some form of forestry assistance. These owners control 75 percent of the private forest land (Table 35). Owners who have harvested timber were more likely to have sought assistance than those who have not.

An estimated 33,000 ownership units, 18 percent of the ownership units with 3,481,500 acres, said they would contact the Maine Forest Service for assistance. Of these 13,800 have sought

assistance in the past (Table 36); these owners have 2,916,300 acres of forest land. Forty-four percent of the acreage controlled by owners who have sought assistance in the past is owned by people who would contact a consultant or industrial forester.

Of the owners who have sought assistance, 16,900 owners with 8,313,600 acres received general forest management assistance (Table 37). Other owners received information about forestry, these owners control 6,847,300 acres of forest land. The remaining owners that sought assistance received help with tree planting, timber sales, insect and disease problems, and help in other areas that foresters provide assistance to private forest-land owners. It is important to note that these data include services received from all forestry sources including forest industries that employ their own foresters.

Recreation

Seventy-three percent of the forest-land ownerships, holding 91 percent of the private forest land, permit or participate in some form of recreational use of their forest land (Table 38). Within this recreation base, there are three major use categories (Fig. 10): (1) the owner, the owner's family, or immediate circle of friends use the land for recreation and exclude the general public; (2) the owner, the owner's family, or immediate circle of friends recreate and permit the public to recreate; and (3) the owner, the owner's family or immediate circle of friends do not use the land for recreation but do permit the public to use a portion of the land for recreation.

Recreational use by the owner and the owner's family or immediate circle of friends occurs on the land of 106,100 ownership units with 13,492,500 acres of forest land (Table 39). Hiking is the most frequently listed form of recreational use on an estimated 35 percent of the ownerships with 66 percent of the private forest land. The recreational activity with the largest percent of the forest land acreage where the owner, the owner's family or immediate circle of friends use the land is hunting. Seventy-five percent of the forest acreage in the state is in these ownerships. Snowmobiling, cross country skiing, picnicking, and camping are all important uses of forest lands in Maine. More than 50 percent of the forest land is owned by people who use a portion of their forest lands for these purposes.

An estimated 95,400 ownership units (53 percent) with 13,905,100 acres (85 percent) allow public use of their forest land for recreation (Table 40). Hunting is the most frequently permitted use, 41 percent of the owners with 81 percent of the forest land. Snowmobiling is permitted by 31 percent of the landowners holding 77 percent of the forest land. Hiking is permitted by 24 percent of the landowners holding 73 percent of

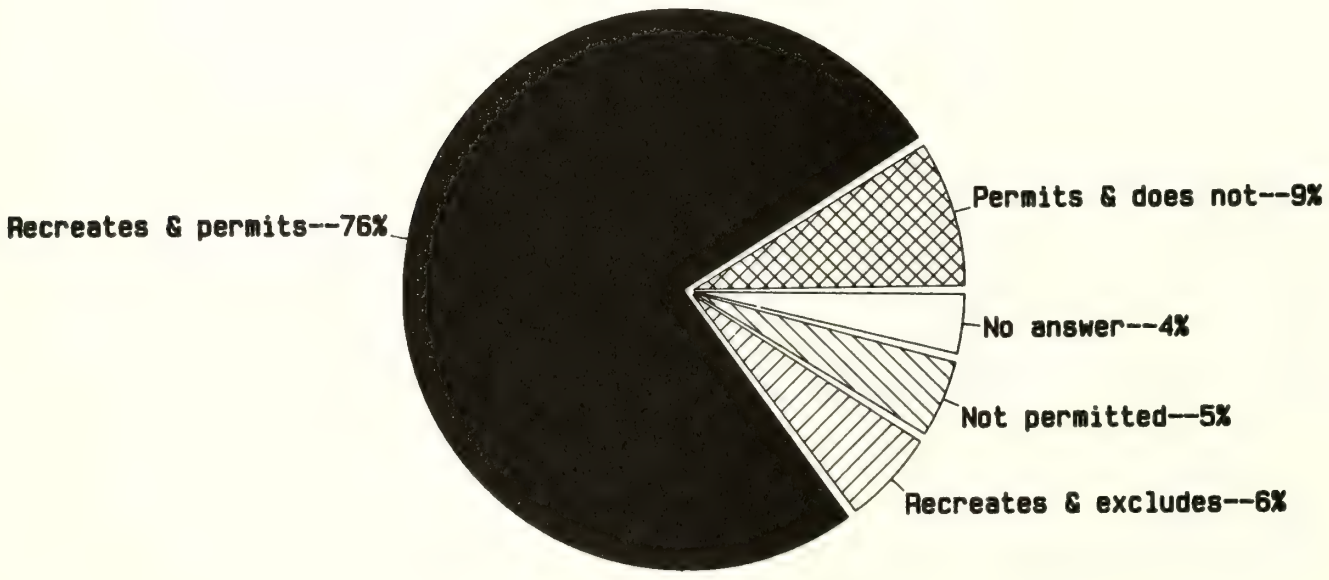

Figure 10.--Distribution of acreage in private ownerships, by availability for recreation, Maine, 1982.

the forest land. Cross country skiing is permitted by 19 percent of the ownerships with 72 percent of the forest land. Camping and picnicking were permitted by fewer than 15 percent of the owners with about two-thirds of the forest land.

The amount of forest land available for public use differs between the Interior and Coastal regions in Maine (Table 41). The more heavily forested Interior region farthest from the population centers has a higher percentage of the forest land available for recreation (89 percent). Large ownerships, those with more than 500 acres of forest land, often open a portion of their land to public recreation (Table 43). Eighty-two percent of the ownerships with more than 500 acres of forest land have a portion of their land available for public recreation.

The amount of forest land for recreational use by the owner, the owner's family or immediate circle of friends only differs substantially from the state average in the Casco Bay region where only 64 percent of the forest is available (Table 42). The types of recreational use and the amounts available do change from region to region. The Down East and North East regions have 80 percent of the area available for owner hunting. The Casco Bay region has only 39 percent of the area available for owner hunting.

Hunting had the largest acreage available for recreational use by the public and in current use by the owner. Hunting availability is an important wildlife management tool. On an estimated 50 percent of the ownership units, the owner uses the land or allows the public to use the land for hunting (Table 44). These ownership units have 85 percent of the private forest land (Fig. 11). An estimated 15 percent of the forest land is unavailable or not being used for hunting.

Only 8 percent of the private forest land in Maine is in ownerships that post a portion of their land (Table 45). There is more acreage posted in ownerships that permit some public recreation use than in ownerships that post their land and do not allow any public recreation. Therefore, just because land is posted it is not necessarily unavailable. The most common reason for posting a portion of the forest land is safety, 8 percent of the owners with 2 percent of the forest land post for safety reasons.

The percentage of forest land in ownerships that post their land varies considerably from region to region. The North East, North West, and Down East regions have about 6 percent of the forest acreage owned by people who post at least a portion of their land (Table 46). The heaviest posting occurs in the Capital region where 28 percent of the forest land is owned by 36 percent of the owners who post their land. The group of owners who seem to post most heavily

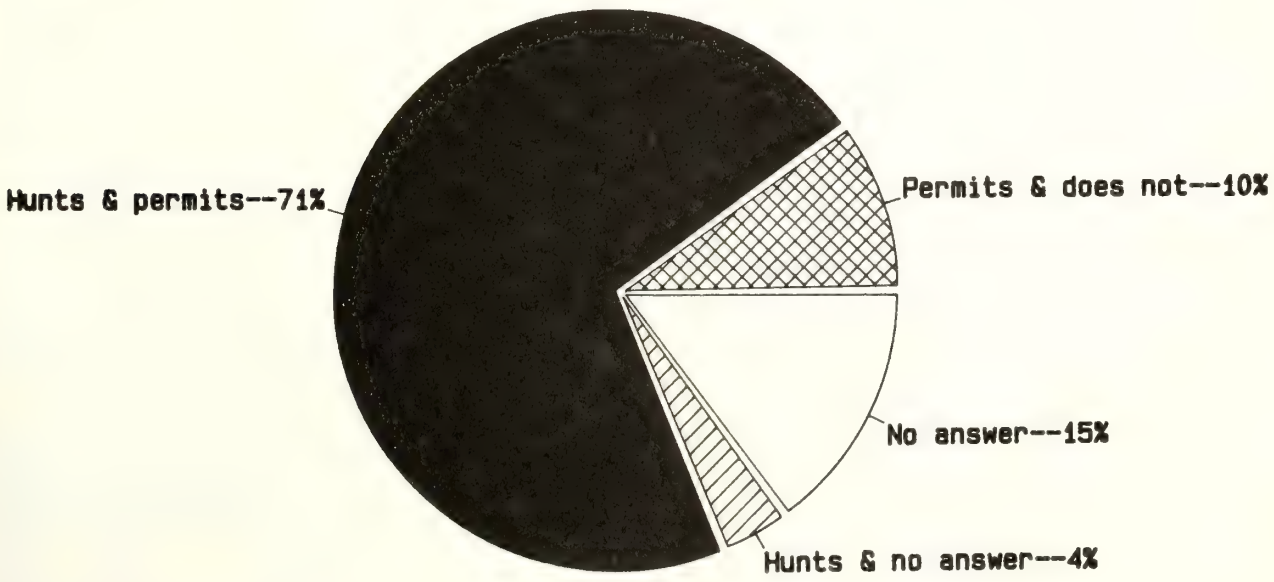

Figure 11.--Distribution of acreage in private ownerships, by availability for hunting, Maine, 1982.

are the owners with 50 to 499 acres of forest land (Table 47). Owners with less than 50 acres of forest land may feel they are able to control access to their land without posting. Many owners with more than 500 acres in Maine can and do control access through the use of permits and by regulating entry into their private road system.

Opinion Questions

To gain insight into woodland owners' opinions about important forestry issues in Maine, we asked our respondents to indicate whether they agreed or disagreed with each of the 12 statements that follow. Owners were encouraged to circle "no opinion" if they did not know about a particular topic. Additional information, including numbers of owners and acres owned by statement and response, is found in Table 51.

Statement:

1. The Maine Bureau of Forestry (Maine Forest Service) provides the kind of assistance woodland owners need.

2. I am capable of managing my forest land without assistance from any person or agency.

3. Forest industries get adequate wood supplies for themselves in xchange for helping owners with small holdings manage their land.

4. Foresters should be licensed just like doctors and lawyers.

5. Owners who manage their woodland should pay lower property taxes than owners who don't manage.

6. I would allow some public recreation on my land if my taxes were reduced for doing so.

7. All foresters care about is timber. They can't or don't want to help with wildlife, water, or recreation problems.

8. If a public forester marks timber for an owner and the owner ignores the forester's cutting recommendations, the state should charge the owner for the forester's time.

9. Despite what they say, forest industries in Maine don't care what they do if they make money.

10. The Maine Tree Growth Tax law treats all owners equally.

11. Some of Maine's forest industries provide assistance to woodland owners who want to manage their woodland.

12. Most of Maine's public assistance programs for woodland owners go to help owners with large holdings.

Responses to the first statement indicate that most landowners feel the Maine Forest Service is providing the kind of assistance woodland owners need. Of all 12 statements, this statement had the lowest percentage of owners who strongly disagreed with it.

Statement 2 reveals that many owners feel capable of managing their forest land without assistance from any person or agency. Many owners with less than 50 acres of forest land disagree with this statement and constitute a significant group of owners who need assistance in managing their forest land.

Very few owners strongly agree or disagree with statement 3. In fact a majority of owners have no opinion about whether forest industries get adequate wood supplies in exchange for helping owners with small holdings.

The owners of larger tracts of forest land feel that foresters should be licensed. It is the owners of small tracts of forest land that do not feel that foresters need to be licensed. A similar percentage of owners and acreage resulted when respondents were asked if owners who manage their land should pay lower property taxes than those who do not manage their land.

Most landowners disagree with statement 6 about reducing taxes if the public is allowed recreational access to their land. This is somewhat surprising considering the amount of private forest available to the public.

Responses to statement 7 indicate that forest-land owners in Maine realize that foresters are concerned about the resources other than timber. This statement produced the largest percentage of owners who strongly disagreed with any of the 12 statements.

The largest number of owners strongly agree with statement 8, and feel that if a public forester marks timber and the owner ignores the forester's cutting recommendations, the state should charge the owner for the forester's time.
While few owners strongly disagree with statement 9, it had the largest acreage in the strongly disagree category. It seems that the large landowners feel that they have a sense of stewardship for the land.

The vast majority of landowners either do not know about the Maine Tree Growth tax law or they have no opinion about its equity to all owners (statement 10).

The owners of large acreages realize that forest industries provide assistance to woodland owners who want to manage their woodlands. However, a majority of owners don't know about this

assistance or have no opinion about the statement.

The owners are equally divided on whether Maine's assistance programs go to help owners with large holdings. The large owners strongly disagree with this statement; they feel that most of the assistance goes to owners of small acreages.

Conclusion

The nonindustrial private forest-land owners of Maine usually hold forest land for reasons other than timber production. Many, however, have recognized that their forest land is a source of income and many other benefits. The current level of timber available is adequate for the short run under current levels of management. More timber is being produced on land controlled by owners who have expressed an interest in timber harvesting than is being utilized for conventional roundwood products.

In Maine, if you motivate the 1 percent of the owners with more than 500 acres of forest land to manage their forest land, 70 percent of Maine's forest land could be influenced. To properly manage the resource, these forest-land owners need information on how to adapt to changing market conditions if shifts take place in the utilization of nongrowing-stock material for fuelwood and industrial products. They also need information at the same time on how to achieve their objectives for owning forest land. In addition, proper management can produce many more of the products needed by society. The existing information system is supplying some owners with the information they need to manage their woodlands, but many forest-land owners are not seeking forestry assistance and fewer are being reached by professional foresters. Many owners with small tracts of forest land do not know where to ask for forestry assistance.

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Appendix

Study Method

The sampling scheme used in this study was derived from the sampling design used in the forest inventory by the Northeastern Station. Forest Inventory and Analysis field crews attempt to obtain the current name and mailing address of the owner of each of 3,105 privately owned forested field plots in the state. These plots are uniformly distributed within each survey unit. The field crews obtained usable addresses for more than 90 percent of the field plots. A total of 1,337 questionnaires were sent to owners of timberland in Maine; 914 (68 percent) were returned with usable information.

The questionnaire was developed from several earlier ownership studies and has been revised as the study has progressed through the Northeastern States. The mailing consisted of a questionnaire and cover letter that explained the purpose of the study. Approximately 2 weeks after the first mailing, a post card was sent to each addressee to remind those who had not responded to return the questionnaire, and to thank those who had responded.

One week later, nonrespondents were mailed a second copy of the questionnaire and the cover letter plus a second letter urging their cooperation. Questionnaires for the state were mailed in June 1982. This resulted in 599 usable questionnaires. In October 1982, the Maine Forest Service then started to contact the in-state nonrespondents and the USDA Forest Service contacted out-of-state nonrespondents. This resulted in an additional 315 usable questionnaires. The 914 questionnaires represent 2,641 of the privately owned forested field plots or 85 percent.

The probability that a forest-land owner will be sampled depends on the rate of sampling and the acreage of timberland owned. Each of the nine forest survey units in Maine had a different rate of sampling. There were also different rates of response between large acreage owners and small acreage owners. Both the survey rate of sampling and the response rate affect the probability that an owner will be included in the final tabulation.

The total acreage of timberland in private ownership was obtained from the forest survey. The area of timberland in large acreage ownerships was then subtracted and the large acreage ownerships form a separate strata. The remaining timberland area in each unit was divided by the number of small acreage field plots represented by the remaining valid questionnaires to determine the area represented by each plot.

Since the sampling scheme is essentially the one used for the forest survey, there is a low probability of inclusion for owners of small parcels of forest land. To estimate the total number of persons who own timberland in Maine, it was necessary to weight the number of owners obtained in the samples. This procedure can be stated as:

$$N = \frac{T_p}{N_r} \Sigma \frac{1}{A_i}$$

N = estimated number of private owners in the sampling strata.

T_p = the acres of timberland in the sampling strata.

N_r = number of respondents in the sampling strata.

A_i = acres owned by individual respondents.

The Σ N then equals the estimated number of private owners in the state or region. This is an unbiased estimate of the total number of ownership units that own timberland in Maine.

The data were edited, processed, and compiled by computer using FINSYS-2, a generalized computer system (Barnard 1978). The nine forest survey units were combined into two regions and five subregions to increase the accuracy and precision of the estimates. The following tabulation shows the pertinent data for each region and subregion.

Region and Subregion	No. of usable questionnaires	Timberland plots	Private timberland plots	Plots Owned by respondents	Average acreage per plot
Interior Region:					
North East	197	1,384	1,337	1,266	5,932
North West	151	715	692	604	7,191
	348	2,099	2,029	1,870	6,339
Coastal Region:					
Down East	112	373	355	304	7,050
Capital	227	356	346	234	4,852
Casco Bay	227	382	370	233	5,314
	566	1,111	1,071	771	5,858
State Total	914	3,210	3,110	2,641	6,198

Data Accuracy and Reliability

It is important to know the variation associated with the estimates contained in this report. Every acre and every owner in the state were not sampled, therefore the data were estimates. When judging the effectiveness of the estimating procedures, we are concerned with two important criteria: first, how accurate is the estimate; and second, how precise or reliable is the estimate. Accuracy is the correspondence between the sample result and the result from a complete count or census using the same definitions and procedure. Reliability is the precision of the statistical estimates. We are chiefly interested in the accuracy of the sample but in most instances we can only measure reliability.

To check the accuracy of the data, we had this report reviewed by outside experts. The response level obtained in the study is an attempt to assure accuracy by minimizing nonresponse bias. Beyond the search for accuracy, the reliability of the estimate is given by the sampling error. Sampling errors were calculated for the estimated number of forest-land owners and the acreage of forest land in each cell of the tables. Sampling errors appear in the tables for the most important categories. The sampling error for the number of acres of timberland in private ownership was calculated as part of the forest survey.

Sampling errors provide a means of evaluating survey results; the smaller the sampling error the greater the reliability of the estimate. A statistic with a sampling error of 10 percent is more reliable than one with a sampling error of 20 percent. If an item has a sampling error of 10 percent, chances are 2 out of 3 that an interval constructed to represent a range of 90 to 110 percent of the survey value would contain the true proportion value.

Since the ownership survey was conducted using a land-area sample, the estimates of area have smaller sampling errors than the estimates of numbers of owners. Estimates for the state as a whole are most reliable (having the smallest sampling errors in percent); followed by the regions; and finally by subregions. The inclusion of small forest parcels (less than 10 acres) in the study population substantially increases the sampling error for the estimated number of owners.

The sampling errors (in percent are:

Region and subregion	Private timberland	Owners of private timberland	Owners holding 10 or more acres
Interior Region:	0.4	13.2	8.1
North East	0.6	18.4	10.6
North West	0.5	19.1	12.3
Coastal Region:	0.5	13.3	6.8
Down East	1.1	29.6	18.4
Capital	1.2	20.2	7.6
Casco Bay	1.3	17.2	9.8
State	0.3	9.9	5.2

Definition of Terms

Average annual net growth of growing stock. The change (resulting from natural causes) in volume of sound wood in sawtimber and poletimber trees during the period between surveys, divided by the length of the period. Components of annual net growth of growing stock include the increment in net volume of trees present at the beginning of the period minus cull increment (the net volume of trees that became rough or rotten during the period).

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick or its equivalent. By Forest Inventory and Analysis convention, softwoods less than 9.0 inches in d.b.h. and hardwoods less than 11.0 inches in d.b.h. do not contain board-foot volume.

Clearcutting. The method of regenerating timber in which the area is cut clear in the literal sense of the word; virtually all the trees, large and small, are removed. The term is often erroneously applied to any type of cutting in which all the merchantable timber is removed.

Diameter limit. The method of harvesting timber in which all trees above a specified diameter are removed.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from nonfarm owners.

Forest industries. Companies or individuals operating wood-using plants.

Forest industry lands. Lands owned by companies or individuals operating primary wood-using plants.

Forest land. Land that is at least 16.7 percent stocked (contains at least 7.5 ft^2 per acre of basal area) by forest trees of any size, or that formerly had such tree cover and is not currently developed for nonforest use. (Forest trees are woody plants that have a well-developed stem and usually are more than 12 feet in height at maturity.) The minimum area for classification of forest land is 1 acre.

Growing-stock trees. Live trees of commerical species that are classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume. Net volume, in ft^3, of growing-stock trees that are 5.0 inches in d.b.h. or larger, from a 1-foot stump to a minmum 4.0-inch top diameter outside bark of the central stem.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Miscellaneous private lands. Privately owned lands other than forest-industry and farmer-owned lands.

Ownership unit. Encompasses all types of legal entities having an ownership interest in land, regardless of the number of people involved. It is the locus of decisionmaking for each parcel, whether an individual (sole proprietor), group of individuals (partnership), or legal person (corporation).

Primary wood manufacturing plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Private timberland. All timberland other than that owned by federal, state, or local governments or their agencies.

Productive-reserved forest land. Forest land sufficiently productive to qualify as timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Pulpwood. Any log from which woodpulp is to be made; usually measured in bolts of 4, 5, or 8 feet, and somewhat smaller in diameter than sawlogs or veneer logs.

Sawtimber trees. Live trees of commerical species that are (a) at least 9.0 inches in d.b.h. for softwoods or 11.0 inches for hardwoods, and (b) that contain at least one 12-foot or two noncontiguous 8-foot merchantable sawlogs, and that meet regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, International 1/4-inch rule, of merchantable sawlogs in live sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Selection system. The method of regenerating timber in which trees of all sizes are harvested. However, in practice, frequently only the oldest or largest trees in a stand are harvested. Trees are taken singly or in small groups, but the entire stand is never cleared completely in a single operation.

Softwoods. Coniferous trees, usually evergreen, with needles or scalelike leaves.

Stand. A growth of trees on forest land.

Timberland. Forest land that is producing or capable of producing crops of industrial wood (more than 20 ft^3/ acre/year) and that is not withdrawn from timber utilization. (Industrial wood is all roundwood products except fuelwood.)

Timber removals. The volume of growing-stock or sawtimber trees harvested or killed in logging or in cultural operations such as timber stand improvement, land clearing, or changes in land use.

Timber salvage. Removals of down, damaged, or diseased trees.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

Unproductive reserved forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions, and withdrawn from timber utilization through statute or administrative designation.

Veneer log. Any log from which veneer is to be made, by peeling (rotary cutting) or slicing.

NE FOREST EXPERIMENT STATION
FOREST SERVICE
U.S. DEPT. OF AGRICULTURE

Form Approved
OMB No. 0596-0058

County _____

Plot _____

MAINE WOODLAND OWNERSHIP STUDY

THIS SURVEY IS VOLUNTARY. WHILE YOU ARE NOT REQUIRED TO RESPOND, YOUR COOPERATION IS NEEDED TO MAKE THE SURVEY RESULTS COMPREHENSIVE, ACCURATE, AND TIMELY. THANK YOU.

Please complete the following questions to the best of your knowledge. Where actual data are not available please use your best estimate. Please be assured your answers will be held strictly confidential. If you do not now own woodland, please answer questions 1 and 2 and return the questionnaire.

1. How much land do you own in Maine? Acres _____

2. How much of your land in Maine is woodland? Acres _____ or percent _____
   (Include abandoned fields with young trees.)

3. In what other states do you own woodland?

   _____ acres in _____

   _____ acres in _____

   _____ acres in _____

   _____ acres in _____

4. Of your woodland in Maine, how much is in each of the following areas?

   (a) Washington County? Acres _____ or percent _____.
   (b) Aroostook County? Acres _____ or percent _____.
   (c) Penobscot County? Acres _____ or percent _____.
   (d) Hancock County? Acres _____ or percent _____.
   (e) Piscataquis County? Acres _____ or percent _____.
   (f) Franklin & Oxford Counties? Acres _____ or percent _____.
   (g) Kennebec, Knox, Lincoln and Waldo Counties? Acres _____ or percent _____.
   (h) Somerset County? Acres _____ or percent _____.
   (i) Androscoggin, Cumberland, Sagadahoc, and York Counties? Acres _____ or percent _____.

5. In what year did you acquire the woodland you now own? Year _____.

6. In which one of the following ownership categories does the major portion of your woodland holding fall? (Please check only one.)

	Check one
Individual or joint ownership (include husband and wife)	1. _____
Undivided estate	2. _____
Partnership	3. _____
Corporation	4. _____
Club or association	5. _____
Other	6. _____

7. If the ownership is a partnership, corporation, club, or association, what is the nature of the business or organization? Or, if woodland is part of an active farm, write in the word "farm" in the space below.

_____

_____

Please indicate the title of the person completing this questionnaire.

_____

8. How many individual tracts or parcels of woodland do you own? Number _____

9. What is the approximate road mileage from your primary residence to your nearest and farthest tract of woodland? (For businesses or organizations consider primary residence to mean nearest place of business.)

Miles to the nearest tract (enter zero if you live on the tract) _____

Miles to farthest tract _____

10. How many times have you or your representative visited your nearest and farthest tract of woodland in the past 12 months?

Number of visits to nearest tract _____

Number of visits to farthest tract _____

11. Have you been approached to sell all or part of your woodland in the last five years?

Timber only	1. Yes _____	2. No. _____
Land and timber	3. Yes _____	4. No. _____

12. Have trees been harvested from your land, either by you personally or by someone else, during the time you have owned your woodland?

Yes 1. _____ Year of most recent harvest _____

No 2. _____

IF TREES HAVE NOT BEEN CUT FROM LAND SKIP TO QUESTION 19 ON PAGE 5.

13. How many years in the last 10 have you cut or allowed to be cut from your woodland timber products for your own use? (Fuelwood, fence posts, etc.)

Number of years _____

14. How many years in the last 10 have you cut or allowed to be cut, timber products for wood-using industries?

Number of years _____

15. During the cutting, what products were harvested? (Check as many as apply)

	Check
Fuelwood for personal use	1. _____
Fuelwood for sale	2. _____
Sawlogs	3. _____
Pulpwood	4. _____
Other products for personal use (fence posts, lumber, etc.)	5. _____
Other products for sale	6. _____
Don't know what products were harvested	7. _____

16. For the most recent harvest, who determined which trees would be cut?

(If you only cut timber for your own use, please check only in that column)

		Timber for own use (check one)	Timber for wood using industry (check one)
Landowner	1.	_____	_____
Forester	2.	_____	_____
Friend or neighbor	3.	_____	_____
Logger or timber buyer	4.	_____	_____
Combination of _____ and _____	5.	_____	_____

17. For the most recent harvest, how were trees chosen to be cut?

		Timber for own use (check one)	Timber for wood using industry (check one)
Preselected marked trees were cut	1.	_____	_____
Trees over a minimum diameter were cut	2.	_____	_____
All or nearly all trees on the area were cut	3.	_____	_____
Trees were cut in land clearing	4.	_____	_____
Other (please specify _____)	5.	_____	_____
Combination of _____ and _____	6.	_____	_____
Don't know method used	7.	_____	_____

18. Why did you harvest timber at the time that you did?

(Check only the one reason you consider most important.)

		Check one
Felt timber was mature	1.	_____
Offered a good price	2.	_____
Land clearing	3.	_____
Needed money	4.	_____
Needed timber for own use	5.	_____
Timber harvest for company use (industry only)	6.	_____
Timber salvage	7.	_____
Cultural treatment	8.	_____
Other _____	9.	_____

19. If you have never cut or allowed trees to be cut from your woodland, why not?

	Check the most important reason
No market for timber	1. _____
Offered price or prevailing market price was too low	2. _____
Value of the land for hunting would be reduced	3. _____
Selling or planning to sell the land	4. _____
Scenery would be reduced	5. _____
Land's value for recreation would be reduced	6. _____
Land is tied up in an estate	7. _____
Distrust loggers	8. _____
Opposed to timber harvesting	9. _____
Timber is too small or of low quality	10. _____
Not enough timber volume	11. _____
Logging would create a fire hazard	12. _____
Don't own enough woodland to harvest timber	13. _____
Have another reason (please specify _____)	14. _____

20. Do you plan to cut trees for your personal use or for wood-using industries from your woodland?

	Timber for own use Check one	Timber for wood using industry Check one
The next 10 years?	1. _____	4. _____
Possibly at some future date?	2. _____	5. _____
Never plan to harvest?	3. _____	6. _____

21. What percent, if any, of your woodland do you feel you would never cut trees from?

Percent _____

22. Have you ever sought advice or help from a forester in managing your woodland?

No _____ Yes _____

(If you have please check the kinds of help or advice)

Information about forestry	1. _____
Help with tree planting	2. _____
General forest management	3. _____
Help with timber sales	4. _____
Help with insects or diseases	5. _____
Other (please specify _____)	6. _____

23. What office, agency, or individual would you contact for forestry help or advice? (If you don't know, please write in "don't know")

_____

24. Why do you own woodland? (Please rank these reasons in order of importance, with number 1 the most important.)

	Rank
Land investment (hope to sell all or most of my woodland at a profit)	_____
Recreation (hunting, camping, fishing, etc.)	_____
Timber production (growing timber or other forest products for sale)	_____
Farm or domestic use (having the woods as a source of timber for my own use, e.g., firewood)	_____
Esthetic enjoyment (wanting woodland and "green space" around my home)	_____
Part of the farm (woodland is part of the farm but serves no useful function in the farm operation)	_____
Part of my residence	_____
Other (please list) _____	_____

25. Which of the following do you feel were the most important benefits you derived from your woodland in the last 5 years? (Please rank these benefits in order of importance, with number 1 the most important.)

	Rank
Increase in land value (investment)	_____
Recreation (hunting, fishing, etc.)	_____
Income from the sale of timber	_____
Esthetic enjoyment (enjoying the woods and wildlife, and "green space")	_____
Farm and domestic use	_____
Other (please list) _____	_____

26. Which of the following do you feel will be the most important benefits you expect to derive from your woodland in the next 5 years? (Please rank these benefits in order of importance, with number 1 the most important.)

	Rank
Increase in land value (investment)	_____
Recreation (hunting, fishing, camping, etc.)	_____
Income from the sale of timber	_____
Esthetic enjoyment (enjoying the woods and wildlife and "green space")	_____
Farm or domestic use	_____
Other (Please list)_____	_____

27. Do you, your family, your immediate circle of friends, or employees (if this is a business) use your woodland for recreation?

Yes _____ No. _____

	(check as many as apply)
Hiking	1. _____
Picnicking	2. _____
Camping	3. _____
Hunting	4. _____
Snowmobiling	5. _____
Cross-country skiing	6. _____
Other (Please list) _____	7. _____

28. Is the general public, other than those people mentioned in the previous question, permitted to use your woodland for recreation?

Yes _____ No. _____

If yes, which recreational activities? (check as many as apply)

Hiking	1. _____
Picnicking	2. _____
Camping	3. _____
Hunting	4. _____
Snowmobiling	5. _____
Cross-country skiing	6. _____
Other (Please list) _____	7. _____

29. Does your woodland contain or abut a

Lake	1. _____
Pond	2. _____
Stream	3. _____

If so, is the water within 100 yards of a road?

Yes _____ No. _____

30. Is your woodland posted?

Yes _____ No. _____

If yes, why have you posted? Check one

Past abuses of the property	1. _____
To protect the safety of the owner and property	2. _____
To protect the owner from liability	3. _____
To control hunting	4. _____
To control access	5. _____
Other (please explain) _____	6. _____

31. If your woodland could support it, and some state aid was available to help you, would you develop dispersed recreation (Hunting, hiking, cross-country skiing, etc.) or centralized recreation (developed campsites, downhill skiing, etc.) for use by the public?

Would not develop	_____
Prefer dispersed	_____
Prefer centralized	_____
No preference	_____

32. Is your woodland in Maine a vacation or retirement homesite? If not, do you plan to build such a home on it in the future?

Vacation or retirement home	Yes _____	No. _____
Future vacation or retirement home	Yes _____	No. _____

33. Please indicate, by circling the appropriate letter, whether you agree or disagree with each of the following statements. If you feel you don't know, please circle the letter "C", "no opinion".

Strongly agree	Agree	No opinion	Disagree	Strongly disagree	
A	B	C	D	E	1. The Maine Bureau of Forestry (Maine Forest Service) provides the kind of assistance woodland owners need.
A	B	C	D	E	2. I am capable of managing my forest land without assistance from any person or agency.
A	B	C	D	E	3. Forest industries get adequate wood supplies for themselves in exchange for helping owners with small holdings manage their land.
A	B	C	D	E	4. Foresters should be licensed just like doctors and lawyers.
A	B	C	D	E	5. Owners who manage their woodland should pay lower property taxes than owners who don't manage.
A	B	C	D	E	6. I would allow some public recreation on my land if my taxes were reduced for doing so.
A	B	C	D	E	7. All foresters care about is timber. They can't or don't want to help with wildlife, water, or recreation problems.
A	B	C	D	E	8. If a public forester marks timber for an owner and the owner ignores the forester's cutting recommendations the state should charge the owner for the forester's time.
A	B	C	D	E	9. Despite what they say, forest industries in Maine don't care what they do if they make money.
A	B	C	D	E	10. The Maine Tree Growth Tax law treats all owners equally.
A	B	C	D	E	11. Some of Maine's forest industries provide assistance to woodland owners who want to manage their woodland.
A	B	C	D	E	12. Most of Maine's public assistance programs for woodland owners go to help owners with large holdings.

The following questions are asked to classify responses on the basis of information about the owner personally. Again, we would remind you that the answers to these questions, and to any other questions on this questionnaire are strictly confidential. All answers will be compiled in such a manner that it will be impossible to identify any individual reply.

These questions do not pertain to and should not be answered by corporations and organizations.

If the woodland is owned by more than one person, the following questions should be answered for the person to whom the questionnaire is addressed.

34. During the first 12 years of the owner's life where did he or she live most of the time?

	Check one
In a city with a population of 100,000 or more	1. _____
In a city with a population of 10,000 to 99,999	2. _____
In a town or city with a population of less than 10,000	3. _____
In a rural area	4. _____
On a farm	5. _____

35. What is the sex of the owner?

Male _____ Female _____

36. What is the age of the owner?

	Check one
Under 25	1. _____
25 - 44	2. _____
45 - 64	3. _____
65 and over	4. _____

37. How many years of formal education has the owner completed?

	Check one
Grades 1 - 8	1. _____
Some high school (9-11)	2. _____
High school graduate	3. _____
Some shooling beyond high school	4. _____
Undergraduate college degree	5. _____
Some graduate college work	6. _____

38. What is the primary occupation of the owner?

_____

39. In which category would the owner's personal gross income from all sources fall?

	Check one
Less than 10,000	1. _____
10,000 to 14,999	2. _____
15,000 to 19,999	3. _____
20,000 to 24,999	4. _____
25,000 to 29,999	5. _____
30,000 or more	6. _____

40. What is the owner's racial or ethnic origin?

White (not of Hispanic origin)	1. _____
Black (not of Hispanic origin)	2. _____
American Indian or Alaskan native	3. _____
Hispanic	4. _____
Asian or Pacific Islander	5. _____

Thank you for taking the time to fill out our questionnaire. Your cooperation is appreciated. If you have any comments please feel free to write them in below.

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Table 1.--Area of timberland, by ownership class and geographic unit, Maine, 1982

(In thousands of acres)

Ownership class	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County	Piscataquis County	Somerset County	Washington County	Western Maine	State total
National Forest	.0	.0	3.2	.0	3.7	.0	.0	.0	38.7	45.6
Other federal	5.6	.2	1.7	.5	.0	.0	.0	11.2	.0	19.2
State	82.7	9.6	7.6	22.0	22.9	86.0	55.4	22.5	45.5	354.2
Indian[a]	.0	.0	.0	16.5	80.3	2.7	.0	11.6	46.0	157.1
County and municipal	76.0	7.2	8.1	2.5	6.9	2.9	2.2	.5	7.7	114.0
Total public	164.3	17.0	20.6	41.5	113.8	91.6	57.6	45.8	137.9	690.1
Forest industry	1,955.6	38.6	104.4	337.0	761.1	1,433.1	1,647.9	858.1	881.1	8,016.9
Farmer	273.4	202.9	268.1	64.6	132.8	20.0	105.5	94.2	145.0	1,306.5
Miscellaneous private:										
Individual	488.8	777.8	753.6	242.1	381.9	130.3	244.2	311.9	673.3	4,003.9
Corporate	58.9	53.3	30.3	17.7	69.6	37.9	159.2	28.4	117.1	572.4
Other[b]	827.4	62.8	81.8	73.4	413.5	525.2	120.1	115.8	250.4	2,470.4
Total private	3,604.1	1,135.4	1,238.2	734.8	1,758.9	2,146.5	2,276.9	1,408.4	2,066.9	16,370.1
All owners	3,768.4	1,152.4	1,258.8	776.3	1,872.7	2,238.1	2,334.5	1,454.2	2,204.8	17,060.2

[a] Includes both fee and trust lands.
[b] Includes undivided estates, partnerships, and trusts.

Table 2.--Estimated number of private ownership units and acres of timberland owned, by size class and geographic region, Maine, 1982

Size class / Acres	Down East	Capital Region	Casco Bay	Coastal total	North East	North West	Interior total	State total	Percent
				OWNERS					
1-9	28,200	22,800	23,600	74,600	11,200	15,000	26,200	100,800	56
10-19	5,000	2,900	5,200	13,100	2,200	2,000	4,200	17,300	9
20-49	3,200	5,300	9,100	17,600	5,700	5,500	11,200	28,800	16
50-99	2,700	4,300	2,600	9,600	5,600	2,900	8,500	18,100	10
100-199	1,400	2,400	1,500	5,300	2,300	1,700	4,000	9,300	5
200-499	300	600	1,300	2,200	1,300	1,400	2,700	4,900	3
500-999	100	300	200	600	200	200	400	1,000	1
1000-4999	W	100	W	100	200	100	300	400	W
5000+	W	W	W	W	200	100	300	300	W
Total	40,900	38,700	43,500	123,100	28,900	28,900	57,800	180,900	100
				ACRES OWNED					
1-9	70,100	67,700	70,800	208,600	43,200	74,500	117,700	326,300	2
10-19	44,500	43,500	70,800	158,800	24,900	27,000	51,900	210,700	1
20-49	109,300	164,200	237,700	511,200	187,600	157,400	345,000	856,200	5
50-99	180,600	256,000	177,000	613,600	313,800	163,600	477,400	1,091,000	7
100-199	201,000	265,700	202,300	669,000	301,900	221,600	523,500	1,192,500	7
200-499	111,800	169,100	242,800	523,700	373,500	354,100	727,600	1,251,300	8
500-999	55,200	77,300	75,900	208,400	124,500	138,700	263,200	471,600	3
1000-4999	31,000	43,500	55,600	130,100	162,800	115,900	278,700	408,800	2
5000+	1,339,700	48,400	105,300	1,493,400	5,977,300	3,091,000	9,068,300	10,561,700	65
Total	2,143,200	1,135,400	1,238,200	4,516,800	7,509,500	4,343,800	11,853,300	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 3.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest and region, Maine, 1982

Ownership class	1 - 10 years	Indefinite	Never	No answer	Total	Sampling error(%)
			COASTAL REGION			
			OWNERS			
Forest industry	200	0	0	W	200	41
Farmer	5,400	1,800	W	1,600	8,800	21
Individual	35,800	49,400	16,200	900	102,300	15
Corporate	800	500	W	0	1,300	39
Other	800	800	8,100	800	10,500	51
Total	43,000	52,500	24,300	3,300	123,100	13.2
			ACRES OWNED			
Forest industry	1,333,000	0	0	5,100	1,338,100	19
Farmer	499,200	96,500	5,100	29,000	629,800	11
Individual	1,353,100	510,800	171,500	50,000	2,085,400	8
Corporate	86,000	29,000	14,700	0	129,700	25
Other	200,300	64,000	44,300	25,200	333,800	26
Total	3,471,600	700,300	235,600	109,300	4,516,800	.7
			INTERIOR REGION			
			OWNERS			
Forest industry	100	0	0	0	100	25
Farmer	5,900	2,300	100	0	8,300	25
Individual	21,900	17,600	6,400	1,300	47,200	16
Corporate	W	400	0	0	400	57
Other	1,200	600	W	0	1,800	36
Total	29,100	20,900	6,500	1,300	57,800	13.3
			ACRES OWNED			
Forest industry	6,678,800	0	0	0	6,678,800	11
Farmer	467,500	200,900	8,300	0	676,700	18
Individual	1,284,800	441,600	99,100	93,000	1,918,500	14
Corporate	403,300	39,400	0	0	442,700	40
Other	2,062,200	64,000	10,400	0	2,136,600	23
Total	10,896,600	745,900	117,800	93,000	11,853,300	.4
			STATE TOTAL			
			OWNERS			
Forest industry	300	0	0	W	300	24
Farmer	11,300	4,100	100	1,600	17,100	16
Individual	57,700	67,000	22,600	2,200	149,500	12
Corporate	800	900	0	0	1,700	32
Other	2,000	1,400	8,100	800	12,300	44
Total	72,100	73,400	30,800	4,600	180,900	9.9
			ACRES OWNED			
Forest industry	8,011,800	0	0	5,100	8,016,900	9
Farmer	966,700	297,400	13,400	29,000	1,306,500	11
Individual	2,637,900	952,400	270,600	143,000	4,003,900	8
Corporate	489,300	68,400	14,700	0	572,400	31
Other	2,262,500	128,000	54,700	25,200	2,470,400	20
Total	14,368,200	1,446,200	353,400	202,300	16,370,100	.3

W-Fewer than 50 owners or less than 0.5 percent.

Table 4.--Estimated number of private ownership units and acres of timberland owned, by size class and form of ownership, Maine, 1982

Size class	Individual		Corporation		Other		Total		Sampling error
Acres	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Percent
				OWNERS					
1-9	93,500	56	0	0	7,300	57	100,800	56	18
10-19	16,800	10	0	0	500	4	17,300	9	20
20-49	26,500	16	700	32	1,600	12	28,800	16	9
50-99	15,900	10	600	27	1,600	12	18,100	10	9
100-199	8,100	5	100	9	1,100	8	9,300	5	8
200-499	4,400	3	100	5	400	3	4,900	3	9
500-999	500	0	400	18	100	1	1,000	1	26
1000-1499	200	0	W	W	200	2	400	W	21
5000+	W	W	200	9	100	1	300	W	13
Total	165,900	100	2,100	100	12,900	100	180,900	100	9.9
				ACRES OWNED					
1-9	311,800	6	0	0	14,500	W	326,300	2	16
10-19	205,300	4	0	0	5,400	W	210,700	1	19
20-49	792,700	15	15,000	W	48,500	2	856,200	5	10
50-99	962,100	19	32,100	W	96,800	4	1,091,000	7	10
100-199	1,069,200	21	22,800	W	100,500	4	1,192,500	7	10
200-499	1,098,900	21	42,600	W	109,800	4	1,251,300	8	11
500-999	324,100	6	102,300	2	45,200	2	471,600	3	15
1000-1499	243,200	5	71,200	1	94,400	3	408,800	2	16
5000+	128,600	3	8,282,100	97	2,151,000	81	10,561,700	65	4
Total	5,135,900	100	8,568,100	100	2,666,100	100	16,370,100	100	.3

W-Fewer than 50 owners or less than 0.5 percent.

Table 5.--Estimated number of business owners and acres of timberland owned, by incorporated and unincorporated businesses, Maine, 1982

Nature of business	Incorporated				Unincorporated			
	Number	Percent	Acres	Percent	Number	Percent	Acres	Percent
Real estate	1,200	57	465,200	5	1,000	1	211,400	3
Forest industry	200	9	7,872,200	92	100	W	144,700	2
Other industry	W	W	18,500	W	0	0	0	0
Nonindustrial business	W	W	23,000	W	100	W	4,900	W
Farm	200	10	123,500	2	16,900	10	1,183,000	15
Sport/recreation club	0	0	0	0	800	W	36,400	1
Recreation development	W	W	5,100	W	200	W	26,500	W
Educational institution	100	5	6,200	W	W	W	8,300	W
Public utility	W	W	4,800	W	0	0	0	0
Other	400	19	49,600	1	159,700	89	6,186,800	79
Total	2,100	100	8,568,100	100	178,800	100	7,802,000	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 6.--Estimated number of individual owners and acres of timberland owned, by occupation and region, Maine, 1982

Occupation	Coastal Region		Interior Region		Total	
	Number	Percent	Number	Percent	Number	Percent
			OWNERS			
Professional	11,300	11	12,900	23	24,200	15
Manager	7,100	6	6,300	12	13,400	8
Other white collar	7,100	6	2,600	5	9,700	6
Total white collar	25,500	23	21,800	40	47,300	29
Craftsman	8,700	8	4,600	8	13,300	8
Blue collar	31,600	28	4,100	7	35,700	22
Total blue collar	40,300	36	8,700	15	49,000	30
Farmer	3,400	3	3,100	6	6,500	4
Service worker	5,100	5	1,200	2	6,300	3
Housewife	3,800	3	3,700	7	7,500	5
Retired	19,300	18	9,900	18	29,200	17
No Answer	13,500	12	6,600	12	20,100	12
Total	110,900	100	55,000	100	165,900	100
			ACRES OWNED			
Professional	429,800	16	355,400	14	785,200	15
Manager	194,100	8	256,200	10	450,300	9
Other white collar	189,000	7	174,000	7	363,000	7
Total white collar	812,900	31	785,600	31	1,598,500	31
Craftsman	201,100	8	202,600	8	403,600	8
Blue collar	320,200	12	259,700	10	580,000	11
Total blue collar	521,300	20	462,300	18	983,600	19
Farmer	316,900	12	435,000	17	751,900	15
Service worker	20,000	1	49,700	2	69,700	1
Housewife	150,600	6	119,500	5	270,100	5
Retired	636,200	24	522,900	21	1,159,100	23
No Answer	149,700	6	153,300	6	303,000	6
Total	2,607,600	100	2,528,300	100	5,135,900	100

Table 7.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest, and occupation, Maine, 1982

Occupation	1 - 10 years	Indefinite	Never	No answer	Total	Sampling error
	Number					Percent
	OWNERS					
Professional	9,800	13,300	900	200	24,200	23
Manager	9,500	1,400	2,500	0	13,400	29
Other white collar	6,300	3,300	0	100	9,700	26
Total white collar	25,600	18,000	3,400	300	47,300	
Craftsman	3,800	5,900	3,600	0	13,300	28
Blue collar	7,900	24,400	1,700	1,700	35,700	34
Total blue collar	11,700	30,300	5,300	1,700	49,000	
Farmer	4,700	1,300	300	200	6,500	18
Service worker	400	5,900	0	0	6,300	81
Housewife	2,500	4,600	400	0	7,500	34
Retired	14,800	8,200	5,600	600	29,200	17
No Answer	8,600	2,700	7,800	1,000	20,100	34
All individuals	68,300	71,000	22,800	3,800	165,900	10.4
All others	3,800	2,400	8,000	800	15,000	36
Total	72,100	73,400	30,800	4,600	180,900	9.9
	ACRES OWNED					
Professional	557,000	181,800	28,500	17,900	785,200	12
Manager	397,500	42,900	9,900	0	450,300	17
Other white collar	251,100	96,700	0	15,200	363,000	15
Total white collar	1,205,600	321,400	38,400	33,100	1,598,500	
Craftsman	246,200	132,800	24,600	0	403,600	15
Blue collar	388,500	152,900	14,300	24,300	580,000	14
Total blue collar	634,700	285,700	38,900	24,300	983,600	
Farmer	572,200	150,100	9,700	19,900	751,900	13
Service worker	39,800	29,900	0	0	69,700	34
Housewife	139,700	104,700	25,700	0	270,100	18
Retired	717,200	273,300	122,200	46,400	1,159,100	10
No Answer	150,800	59,800	44,000	48,400	303,000	17
All individuals	3,460,000	1,224,900	278,900	172,100	5,135,900	7.6
All others	10,908,200	221,300	74,500	30,200	11,234,200	3.5
Total	14,368,200	1,446,200	353,400	202,300	16,370,100	.3

Table 8.--Estimated number of individual owners and acres of timberland owned, by age class and region, Maine, 1982

Age class	Individual owners		Sampling error	Acres owned		Sampling error
Years	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
Under 25	300	0	72	24,200	1	63
25-44	38,500	35	26	577,000	22	12
45-64	46,300	42	23	1,266,600	49	9
65 or over	22,300	20	26	674,600	26	10
No answer	3,500	3	52	65,200	2	28
Total	110,900	100	14.0	2,607,600	100	5.3
			INTERIOR REGION			
Under 25	200	W	103	6,200	W	108
25-44	18,500	34	28	566,000	22	19
45-64	25,100	46	21	1,239,700	49	16
65 or over	8,100	15	24	619,100	25	17
No answer	3,100	5	68	97,300	4	34
Total	55,000	100	14.0	2,528,300	100	8.7
			STATE TOTAL			
Under 25	500	1	55	30,400	1	49
25-44	57,000	34	20	1,143,000	22	11
45-64	71,400	43	17	2,506,300	49	9
65 or over	30,400	18	20	1,293,700	25	10
No answer	6,600	4	42	162,500	3	23
Total	165,900	100	10.4	5,135,900	100	7.6

W-Fewer than 50 owners or less than 0.5 percent.

Table 9.--Estimated number of individual owners and acres of timberland owned, by years of formal education and region, Maine, 1982

Education level	Individual owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
1-8 years	9,300	8	32	196,500	8	20
9-11 years	13,400	12	41	262,100	10	17
High school graduate	20,000	18	30	617,800	24	11
Beyond high school	28,800	26	40	429,300	16	13
Bachelors degree	19,200	18	25	516,000	20	12
Graduate work	11,300	10	22	496,100	19	11
No answer	8,900	8	58	89,800	3	23
Total	110,900	100	14.0	2,607,600	100	5.3
			INTERIOR REGION			
1-8 years	3,000	5	29	202,000	8	24
9-11 years	6,200	11	31	339,500	13	21
High school graduate	13,600	25	34	520,200	21	19
Beyond high school	12,600	23	34	475,500	19	19
Bachelors degree	4,400	8	31	386,800	15	22
Graduate work	10,900	20	34	455,500	18	19
No answer	4,300	8	51	148,800	6	28
Total	55,000	100	14.0	2,528,300	100	8.7
			STATE TOTAL			
1-8 years	12,300	7	25	398,500	8	16
9-11 years	19,600	12	30	601,600	12	14
High school graduate	33,600	20	22	1,138,000	22	10
Beyond high school	41,400	25	29	904,800	18	12
Bachelors degree	23,600	14	21	902,800	17	12
Graduate work	22,200	14	20	951,600	18	11
No answer	13,200	8	42	238,600	5	19
Total	165,900	100	10.4	5,135,900	100	7.6

Table 10.--Estimated number of individual owners and acres of timberland owned, by annual income class and region, Maine, 1982

Income class	Individual owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
Under $10,000	20,100	18	23	484,100	19	13
$10,000-$14,999	15,000	13	37	330,400	13	15
$15,000-$19,999	12,000	11	44	257,200	10	16
$20,000-$24,999	13,700	12	69	220,300	8	18
$25,000-$29,999	4,300	4	46	143,200	5	19
$30,000+	16,200	15	24	590,600	23	10
No answer	29,600	27	28	581,800	22	11
Total	110,900	100	14.0	2,607,600	100	5.3
			INTERIOR REGION			
Under $10,000	12,800	23	31	553,600	22	18
$10,000-$14,999	10,300	19	34	293,600	12	21
$15,000-$19,999	4,200	8	62	196,100	8	25
$20,000-$24,999	7,200	13	38	200,600	8	25
$25,000-$29,999	700	1	38	105,300	4	33
$30,000+	9,500	17	34	767,200	30	18
No answer	10,300	19	34	411,900	16	20
Total	55,000	100	14.0	2,528,300	100	8.7
			STATE TOTAL			
Under $10,000	32,900	20	19	1,037,700	20	11
$10,000-$14,999	25,300	15	26	624,000	12	13
$15,000-$19,999	16,200	10	36	453,300	9	14
$20,000-$24,999	20,900	13	47	420,900	8	15
$25,000-$29,999	5,000	3	40	248,500	5	18
$30,000+	25,700	15	20	1,357,800	27	11
No answer	39,900	24	22	993,700	19	11
Total	165,900	100	10.4	5,135,900	100	7.6

Table 11.--Estimated number of individual owners and acres of timberland owned, by early life environment[a], and region, Maine, 1982

Early life environment	Individual owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
City over 100,000	8,100	7	24	249,700	10	16
City 10,000-99,999	10,700	10	24	368,600	14	12
Town/city under 10,000	20,000	18	33	396,000	15	13
Rural area	44,300	40	27	779,200	30	11
On a farm	20,900	19	28	714,100	27	10
No answer	6,900	6	71	100,000	4	22
Total	110,900	100	14.0	2,607,600	100	5.3
			INTERIOR REGION			
City over 100,000	8,900	16	39	217,200	8	25
City 10,000-99,999	10,900	20	40	218,600	9	24
Town/city under 10,000	7,300	13	36	456,600	18	19
Rural area	15,000	27	29	704,600	28	18
On a farm	9,500	18	16	805,000	32	17
No answer	3,400	6	62	126,300	5	30
Total	55,000	100	14.0	2,528,300	100	8.7
			STATE TOTAL			
City over 100,000	17,000	10	24	466,900	9	14
City 10,000-99,999	21,600	13	23	587,200	11	12
Town/city under 10,000	27,300	17	26	852,600	17	12
Rural area	59,300	36	22	1,483,800	29	10
On a farm	30,400	18	20	1,519,100	30	10
No answer	10,300	6	51	226,300	4	20
Total	165,900	100	10.4	5,135,900	100	7.6

[a]First 12 years.

Table 12.--Estimated number of private ownership units and acres of timberland owned, by date of acquisition and form of ownership, Maine, 1982

Date of acquisition	Forest Industry	Farmer	Corporate	Misc. Individual	Misc. Other	Total
			OWNERS			
1980-1982	100	200	W	10,600	600	11,500
1970-1979	W	6,800	600	73,800	4,000	85,200
1960-1969	100	3,200	600	23,400	400	27,700
1950-1959	W	2,800	200	16,600	400	20,000
1940-1949	W	2,500	W	10,300	1,100	13,900
1901-1939	100	700	W	3,900	5,000	9,700
Prior to 1900	W	W	-	300	100	400
No answer	W	900	300	10,600	700	12,500
Total	300	17,100	1,700	149,500	12,300	180,900
			ACRES OWNED			
1980-1982	10,400	30,700	33,700	274,600	25,600	375,000
1970-1979	61,300	272,800	52,500	1,190,200	93,600	1,670,400
1960-1969	745,500	239,300	57,400	970,300	91,500	2,104,000
1950-1959	53,900	241,000	49,300	731,600	48,900	1,124,700
1940-1949	1,104,300	258,300	5,400	476,100	84,500	1,928,600
1901-1939	1,351,000	116,000	88,700	196,300	92,900	1,844,900
Prior to 1900	4,323,800	10,100	-	14,500	1,132,300	5,480,700
No answer	366,700	138,300	285,400	150,300	901,100	1,841,800
Total	8,016,900	1,306,500	572,400	4,003,900	2,470,400	16,370,100

W-Fewer than 50 owners or less than 0.5 percent.

Table 13.--Estimated number of private ownership units and acres of timberland owned, by date of acquisition, Maine 1982

Date of acquisition	Individual owners			Acres owned			All other owners			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
1980-1982	10,700	6	31	289,300	6	18	800	5	69	85,700	1	33
1970-1979	80,500	49	19	1,473,900	29	10	4,700	32	55	196,500	2	23
1960-1969	26,600	16	18	1,190,800	23	10	1,100	7	35	913,200	8	36
1950-1959	19,100	11	20	945,800	18	11	900	6	39	178,900	2	28
1940-1949	12,800	8	23	704,700	14	13	1,100	7	52	1,223,900	11	30
1901-1939	4,500	3	24	265,700	5	18	5,200	35	90	1,579,200	14	27
Prior to 1900	300	W	53	19,600	W	50	100	1	43	5,461,100	48	14
No answer	11,400	7	48	246,100	5	18	1,100	7	34	1,595,700	14	25
Total	165,900	100	10.4	5,135,900	100	7.6	15,000	100	36.2	11,234,200	100	3.5

W-Fewer than 50 owners or less than 0.5 percent.

Table 14.--Estimated number of private ownership units and acres of timberland owned, by distance from residence to nearest tract and region, Maine, 1982

Distance from residence (miles)	Private ownership units			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
			COASTAL REGION			
0-1	81,700	66	14	3,316,300	73	5
2-5	7,400	6	64	234,800	5	17
6-15	14,000	11	69	281,200	6	28
16-25	1,200	2	41	193,100	4	40
26-50	1,100	1	53	60,000	2	32
50-100	1,100	1	68	40,400	1	36
Over 100	6,300	5	23	262,600	6	15
No answer	10,300	8	54	128,400	3	22
Total	123,100	100	13.2	4,516,800	100	.7
			INTERIOR REGION			
0-1	38,400	66	16	7,456,500	62	10
2-5	3,200	6	39	1,032,900	8	27
6-15	4,700	8	71	589,200	5	37
16-25	700	1	57	1,923,900	16	33
26-50	300	1	44	277,000	3	31
50-100	400	1	64	73,100	1	45
Over 100	5,800	10	46	331,200	3	25
No answer	4,300	7	52	169,500	2	30
Total	57,800	100	13.3	11,853,300	100	.4
			STATE TOTAL			
0-1	120,100	66	13	10,772,800	66	7
2-5	10,600	6	18	1,267,700	7	22
6-15	18,700	10	46	870,400	5	26
16-25	1,900	1	25	2,117,000	13	30
26-50	1,400	1	57	337,000	2	26
50-100	1,500	1	33	113,500	1	31
Over 100	12,100	7	25	593,800	4	15
No answer	14,600	8	35	297,900	2	19
Total	180,900	100	9.9	16,370,100	100	.3

Table 15.--Estimated number of private ownership units and acres of timberland owned, by number of tracts and region, Maine, 1982

Number of tracts	Private owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
1	90,500	74	7	1,401,700	31	9
2	15,500	12	18	686,400	15	10
3	7,700	6	35	313,700	7	14
4	6,200	5	76	187,400	4	21
5	1,000	1	27	149,200	3	19
6 - 10	1,500	1	47	224,900	5	29
11 or more	700	1	39	1,553,500	35	15
Total	123,100	100	13.2	4,516,800	100	.7
			INTERIOR REGION			
1	40,600	71	17	1,178,700	10	15
2	10,800	18	28	612,200	5	18
3	4,200	7	50	417,800	4	20
4	600	1	27	207,500	2	34
5	500	1	31	173,700	1	27
6 - 10	500	1	24	271,500	2	24
11 or more	600	1	56	8,991,900	76	4
Total	57,800	100	13.3	11,853,300	100	.4
			STATE TOTAL			
1	131,100	72	13	2,580,400	16	8
2	26,300	15	16	1,298,600	8	10
3	11,900	7	28	731,500	5	13
4	6,800	3	69	394,900	2	20
5	1,500	1	21	322,900	2	17
6 - 10	2,000	1	36	496,400	3	18
11 or more	1,300	1	33	10,545,400	64	4
Total	180,900	100	9.9	16,370,100	100	.3

Table 16.--Estimated number of private ownership units and acres of timberland owned, by distance from tracts, Maine, 1982

Distance (miles)	Owners of 1 tract	Owners of more than 1 tract	
		Nearest tract	Farthest tract
	OWNERS		
0-1	87,500	32,600	8,900
2-5	3,000	7,600	5,500
6-15	16,800	1,900	5,300
16-25	1,000	900	1,300
26-50	1,100	300	3,500
51-100	1,200	300	2,600
Over 100	9,600	2,400	16,400
No answer	10,900	3,800	6,300
Total	131,100	49,800	49,800
	ACRES OWNED		
0-1	1,659,200	9,113,600	585,600
2-5	149,700	1,118,000	638,000
6-15	153,700	716,700	771,000
16-25	59,900	2,057,100	312,600
26-50	52,100	284,900	1,180,700
51-100	50,200	63,300	3,229,000
Over 100	320,900	272,900	6,641,400
No answer	134,700	163,200	431,400
Total	2,580,400	13,789,700	13,789,700

Table 17.--Estimated number of private ownership units and acres of timberland owned, by primary reason for owning, for harvesters and nonharvesters, Maine, 1982

Primary reason for owning	Private owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			HARVESTERS			
Land investment	7,400	8	46	1,075,700	7	25
Recreational use	2,600	3	30	195,600	1	21
Timber production	3,800	4	16	9,892,000	65	5
Farm and domestic use	30,100	31	32	1,228,400	8	10
Esthetic enjoyment	11,500	12	22	393,000	3	14
Part of farm	7,500	8	31	470,700	3	15
Part of residence	27,300	29	20	773,900	5	12
Other	4,000	4	27	854,900	6	39
No answer	1,400	1	33	258,900	2	39
Total	95,600	100	12.6	15,143,100	100	.9
			NONHARVESTERS			
Land investment	5,500	6	37	210,300	17	21
Recreational use	11,000	13	50	119,700	10	26
Timber production	600	1	52	74,800	6	46
Farm and domestic use	6,100	7	49	70,500	6	31
Esthetic enjoyment	16,200	19	37	242,600	20	18
Part of farm	2,100	3	29	127,900	10	26
Part of residence	32,400	38	29	205,800	17	20
Other	7,800	9	65	138,500	11	22
No answer	3,600	4	72	36,900	3	40
Total	85,300	100	16.4	1,227,000	100	10.3
			ALL PRIVATE OWNERS			
Land investment	12,900	7	30	1,286,000	8	21
Recreational use	13,600	8	41	315,300	2	17
Timber production	4,400	2	16	9,966,800	61	5
Farm and domestic use	36,200	20	28	1,298,900	8	10
Esthetic enjoyment	27,700	15	23	635,600	4	12
Part of farm	9,600	5	25	598,600	3	14
Part of residence	59,700	33	18	979,700	6	11
Other	11,800	7	44	993,400	6	34
No answer	5,000	3	53	295,800	2	34
Total	180,900	100	9.9	16,370,100	100	.3

Table 18.--Estimated number of private ownership units and acres of timberland owned, by primary and secondary reason for owning, Maine, 1982

Reason for owning	Primary reason		Secondary reason	
	Number	Percent	Number	Percent
	OWNERS			
Land investment	12,900	7	17,300	10
Recreational use	13,600	8	12,900	7
Timber production	4,400	2	5,200	3
Farm and domestic use	36,200	20	21,900	12
Esthetic enjoyment	27,700	15	24,900	14
Part of farm	9,600	5	6,800	4
Part of residence	59,700	33	22,000	12
Other	11,800	7	6,400	3
No secondary reason given	-	-	58,500	32
No answer	5,000	3	5,000	3
Total	180,900	100	180,900	100
	ACRES OWNED			
Land investment	1,286,000	8	2,676,500	16
Recreational use	315,300	2	1,113,100	7
Timber production	9,966,800	61	1,759,500	11
Farm and domestic use	1,298,900	8	934,500	6
Esthetic enjoyment	635,600	4	567,100	3
Part of farm	598,600	3	289,800	2
Part of residence	979,700	6	457,500	3
Other	993,400	6	1,419,600	8
No secondary reason given	-	-	6,856,700	42
No answer	295,800	2	295,800	2
Total	16,370,100	100	16,370,100	100

Table 19.--Estimated number of private ownership units and acres of timberland owned, by primary reason for owning and expected time of future harvest, Maine, 1982

Primary reason for owning	Expected time of future harvest									
	Next 10 years		Indefinite		Never		No answer		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
					OWNERS					
Land investment	4,800	7	6,200	8	1,400	5	500	11	12,900	7
Recreational use	4,600	6	1,100	2	7,800	25	100	2	13,600	8
Timber production	3,300	5	700	1	-	-	400	9	4,400	2
Farm and domestic use	17,800	25	16,500	22	100	W	1,800	39	36,200	20
Esthetic enjoyment	14,600	20	4,500	6	8,400	27	200	4	27,700	15
Part of farm	6,200	9	2,600	4	600	2	200	4	9,600	5
Part of residence	17,500	24	34,500	47	7,600	25	100	2	59,700	33
Other	1,800	2	7,100	10	2,400	8	500	11	11,800	7
No answer	1,500	2	200	W	2,500	8	800	18	5,000	3
Total	72,100	100	73,400	100	30,800	100	4,600	100	180,900	100
					ACRES OWNED					
Land investment	934,300	6	246,300	17	63,300	18	42,100	21	1,286,000	8
Recreational use	186,700	1	89,200	6	29,300	8	10,100	5	315,300	2
Timber production	9,849,600	68	103,800	7	-	-	13,400	7	9,966,800	61
Farm and domestic use	1,052,800	7	206,700	14	13,400	4	26,000	13	1,298,900	8
Esthetic enjoyment	369,600	3	160,400	11	89,500	25	16,100	8	635,600	4
Part of farm	373,600	3	172,400	12	39,500	11	13,100	6	598,600	3
Part of residence	588,100	4	311,500	22	70,200	20	9,900	5	979,700	6
Other	797,800	6	120,800	8	43,100	12	31,700	15	993,400	6
No answer	215,700	2	35,100	3	5,100	2	39,900	20	295,800	2
Total	14,368,200	100	1,446,200	100	353,400	100	202,300	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 20.--Estimated number of private ownership units and acres of timberland owned, by primary reason for owning, for harvesters and nonharvesters and region, Maine, 1982

Primary reason for owning	Private owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
			HARVESTERS			
Land investment	2,100	4	29	243,700	6	17
Recreational use	1,200	1	37	98,900	2	25
Timber production	1,500	3	18	1,658,900	45	13
Farm and domestic use	21,800	40	44	647,400	17	13
Esthetic enjoyment	5,400	10	26	229,700	6	16
Part of farm	2,900	5	32	205,900	5	16
Part of residence	16,700	30	22	435,100	12	13
Other	3,300	6	31	168,100	4	19
No answer	1,000	1	33	100,200	3	24
Total	55,900	100	18.4	3,787,900	100	2.3
			NONHARVESTERS			
Land investment	3,400	5	54	79,800	11	27
Recreational use	8,800	13	62	74,400	10	31
Timber production	400	1	59	29,800	4	48
Farm and domestic use	5,700	8	52	45,700	6	34
Esthetic enjoyment	12,500	19	43	166,200	23	20
Part of farm	1,400	2	36	69,900	10	32
Part of residence	24,100	36	36	137,400	19	24
Other	7,300	11	70	95,000	13	24
No answer	3,600	5	73	30,700	4	43
Total	67,200	100	19.5	728,900	100	11.6
			ALL PRIVATE OWNERS			
Land investment	5,500	4	35	323,500	7	15
Recreational use	10,000	8	54	173,300	4	21
Timber production	1,900	2	19	1,688,700	37	12
Farm and domestic use	27,500	22	36	693,100	15	12
Esthetic enjoyment	17,900	15	31	395,900	9	13
Part of farm	4,300	3	25	275,800	6	16
Part of residence	40,800	33	23	572,500	13	12
Other	10,600	9	49	263,100	6	15
No answer	4,600	4	57	130,900	3	21
Total	123,100	100	13.2	4,516,800	100	.7

Table 20.--continued

Primary reason for owning	Private owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			INTERIOR REGION			
			HARVESTERS			
Land investment	5,300	12	63	832,000	7	32
Recreational use	1,400	4	44	96,700	1	33
Timber production	2,300	6	24	8,233,100	75	6
Farm and domestic use	8,300	21	24	581,000	4	17
Esthetic enjoyment	6,100	16	35	163,300	1	26
Part of farm	4,600	11	47	264,800	2	24
Part of residence	10,600	27	38	338,800	3	21
Other	700	2	43	686,800	6	48
No answer	400	1	77	158,700	1	62
Total	39,700	100	15.6	11,355,200	100	.9
			NONHARVESTERS			
Land investment	2,100	12	43	130,500	26	29
Recreational use	2,200	12	59	45,300	9	48
Timber production	200	1	86	45,000	9	69
Farm and domestic use	400	2	75	24,800	5	61
Esthetic enjoyment	3,700	20	71	76,400	15	38
Part of farm	700	4	52	58,000	12	42
Part of residence	8,300	46	47	68,400	14	38
Other	500	3	52	43,500	9	47
No answer	-	-	-	6,200	1	108
Total	18,100	100	27.0	498,100	100	18.8
			ALL PRIVATE OWNERS			
Land investment	7,400	13	47	962,500	8	28
Recreational use	3,600	6	40	142,000	1	28
Timber production	2,500	4	23	8,278,100	70	6
Farm and domestic use	8,700	15	23	605,800	5	17
Esthetic enjoyment	9,800	17	35	239,700	2	23
Part of farm	5,300	9	41	322,800	3	23
Part of residence	18,900	33	29	407,200	4	20
Other	1,200	2	33	730,300	6	45
No answer	400	1	77	164,900	1	60
Total	57,800	100	13.3	11,853,300	100	.4

Table 21.--Estimated number of private ownership units and acres of timberland owned, by primary benefit received in the last 5 years and by region, Maine, 1982

Primary benefit	Private owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
Land value increase	8,900	7	17	482,900	11	16
Recreational use	17,200	14	45	154,100	3	23
Sale of timber	3,100	3	18	1,221,900	27	24
Esthetic enjoyment	62,600	51	23	825,400	18	9
Farm and domestic use	25,500	20	16	989,700	22	12
Other	3,300	3	37	682,600	15	42
No answer	2,500	2	25	160,200	4	20
Total	123,100	100	13.2	4,516,800	100	.7
			INTERIOR REGION			
Land value increase	6,700	12	34	776,200	6	24
Recreational use	1,500	3	32	123,700	1	30
Sale of timber	3,700	6	20	7,638,400	64	8
Esthetic enjoyment	20,300	35	25	571,600	5	17
Farm and domestic use	19,700	34	26	823,800	7	16
Other	1,200	2	36	1,663,600	15	36
No answer	4,700	8	53	256,000	2	41
Total	57,800	100	13.3	11,853,300	100	.4
			STATE TOTAL			
Land value increase	15,600	9	18	1,259,100	8	16
Recreational use	18,700	10	41	277,800	2	18
Sale of timber	6,800	4	14	8,860,300	54	8
Esthetic enjoyment	82,900	46	18	1,397,000	8	9
Farm and domestic use	45,200	25	15	1,813,500	11	10
Other	4,500	2	29	2,346,200	14	28
No answer	7,200	4	35	416,200	3	26
Total	180,900	100	9.9	16,370,100	100	.3

Table 22.--Estimated number of private ownership units and acres of timberland owned, by primary benefit expected in the next 5 years and expected time of future harvest, Maine, 1982

Primary benefit	Expected time of future harvest								Total	
	Next 10 years		Indefinite		Never		No answer			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
					OWNERS					
Land value increase	6,800	9	5,700	8	5,900	19	500	11	18,900	10
Recreational use	2,200	3	7,100	10	7,500	24	100	2	16,900	9
Sale of timber	5,900	8	1,300	2	-	-	400	9	7,600	4
Esthetic enjoyment	29,400	41	33,600	46	12,900	42	200	4	76,100	42
Farm and domestic use	25,500	35	21,600	29	3,000	10	1,900	42	52,000	29
Other	1,200	2	800	1	900	3	200	4	3,100	2
No answer	1,100	2	3,300	4	600	2	1,300	28	6,300	4
Total	72,100	100	73,400	100	30,800	100	4,600	100	180,900	100
					ACRES OWNED					
Land value increase	912,600	6	310,300	21	89,000	25	26,500	13	1,338,400	8
Recreational use	143,000	1	125,300	9	29,100	8	10,000	5	307,400	2
Sale of timber	8,708,500	61	131,700	9	-	-	34,200	17	8,874,400	54
Esthetic enjoyment	762,900	5	414,700	29	131,300	37	19,500	9	1,328,400	8
Farm and domestic use	1,241,700	9	296,800	20	47,500	14	32,300	16	1,618,300	10
Other	2,335,400	16	38,800	3	31,500	9	21,600	11	2,427,300	15
No answer	264,100	2	128,600	9	25,000	7	58,200	29	475,900	3
Total	14,368,200	100	1,446,200	100	353,400	100	202,300	100	16,370,100	100

Table 23.--Estimated number of private ownership units and acres of timberland owned by primary benefit expected in the next 5 years and region, Maine, 1982

Primary benefit	Private owners		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
Land value increase	11,900	11	18	476,700	10	11
Recreational use	15,600	6	47	173,400	4	21
Sale of timber	3,700	3	16	1,281,000	30	22
Esthetic enjoyment	51,300	43	21	754,400	17	9
Farm and domestic use	36,200	29	29	936,900	20	12
Other	1,900	6	28	678,300	14	43
No answer	2,500	2	25	216,100	5	28
Total	123,100	100	13.2	4,516,800	100	.7
			INTERIOR REGION			
Land value increase	7,000	12	33	861,700	7	23
Recreational use	1,300	2	35	134,000	1	29
Sale of timber	3,900	7	20	7,593,400	64	8
Esthetic enjoyment	24,800	43	25	574,000	5	18
Farm and domestic use	15,800	28	25	681,400	6	17
Other	1,200	2	40	1,749,000	15	34
No answer	3,800	6	57	259,800	2	40
Total	57,800	100	13.3	11,853,300	100	.4
			STATE TOTAL			
Land value increase	18,900	10	16	1,338,400	8	15
Recreational use	16,900	9	44	307,400	2	17
Sale of timber	7,600	4	13	8,874,400	54	8
Esthetic enjoyment	76,100	42	16	1,328,400	8	9
Farm and domestic use	52,000	29	21	1,618,300	10	10
Other	3,100	2	23	2,427,300	15	27
No answer	6,300	4	36	475,900	3	25
Total	180,900	100	9.9	16,370,100	100	.3

Table 24.--Estimated number of private ownership units who have harvested timber and acres of timberland owned, by reason for harvesting and form of ownership, Maine, 1982

Reason for harvesting	Forest Industry	Farmer	Individual	Corporate	Other	Total
			OWNERS			
Timber mature	100	2,700	7,300	400	600	11,100
Good price	-	200	700	300	W	1,200
Land clearing	-	2,400	16,100	300	300	19,100
Needed money	W	1,800	8,000	200	900	10,900
Own use	-	5,700	25,800	W	500	32,000
Company use	100	-	100	W	-	200
Timber salvage	W	300	6,400	-	200	6,900
Cultural treatment	-	100	1,200	-	100	1,400
Other	W	200	8,800	100	100	9,200
No answer	W	1,500	1,100	200	800	3,600
Total	200	14,900	75,500	1,500	3,500	95,600
			ACRES OWNED			
Timber mature	95,000	368,400	823,600	44,700	343,700	1,675,400
Good price	-	29,400	62,800	16,100	10,400	118,700
Land clearing	-	103,600	128,800	14,500	14,700	261,600
Needed money	15,400	235,200	407,700	47,400	57,300	763,000
Own use	-	327,900	795,000	5,100	38,900	1,166,900
Company use	5,738,400	-	36,000	31,300	-	5,805,700
Timber salvage	117,400	38,200	243,700	-	902,600	1,301,900
Cultural treatment	-	10,200	142,200	-	23,700	176,100
Other	1,935,100	24,900	304,400	141,100	931,200	3,336,700
No answer	79,000	81,900	117,900	243,000	15,300	537,100
Total	7,980,300	1,219,700	3,062,100	543,200	2,337,800	15,143,100

W-Fewer than 50 owners or less than 0.5 percent.

Table 25.--Estimated number of private ownership units who have harvested timber and acres of timberland owned, by reason for harvesting and region, Maine, 1982

Reason for harvesting	Harvesters		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
Timber mature	6,400	11	18	651,700	17	11
Good price	1,100	2	35	69,000	2	29
Land clearing	17,200	31	56	172,800	5	19
Needed money	5,800	10	30	334,000	9	15
Own use	16,300	30	19	616,300	16	10
Company use	100	W	67	1,181,800	31	23
Timber salvage	2,000	4	44	196,800	5	46
Cultural treatment	1,000	2	36	85,300	2	24
Other	4,100	7	27	379,100	10	24
No answer	1,900	3	35	101,100	3	23
Total	55,900	100	18.4	3,787,900	100	2.3
			INTERIOR REGION			
Timber mature	4,700	12	17	1,023,700	9	23
Good price	100	W	59	49,700	W	45
Land clearing	1,900	5	60	88,800	1	34
Needed money	5,100	13	43	429,000	4	22
Own use	15,700	40	25	550,500	5	18
Company use	100	W	44	4,623,800	41	19
Timber salvage	4,900	12	54	1,105,200	10	33
Cultural treatment	400	1	53	90,800	1	35
Other	5,100	13	65	2,957,700	26	23
No answer	1,700	4	47	436,000	3	43
Total	39,700	100	15.6	11,355,200	100	.9
			STATE TOTAL			
Timber mature	11,100	12	12	1,675,400	11	15
Good price	1,200	1	33	118,700	1	25
Land clearing	19,100	20	51	261,600	1	17
Needed money	10,900	11	26	763,000	5	14
Own use	32,000	33	16	1,166,800	7	10
Company use	200	1	30	5,805,600	38	16
Timber salvage	6,900	7	40	1,302,000	9	29
Cultural treatment	1,400	1	30	176,100	2	22
Other	9,200	10	38	3,336,800	22	20
No answer	3,600	4	29	537,100	4	35
Total	95,600	100	12.6	15,143,100	100	.9

W-Fewer than 50 owners or less than 0.5 percent.

Table 26.--Estimated number of private ownership units who have not harvested timber and acres of timberland owned, by reason for not harvesting and form of ownership, Maine, 1982

Reason for not harvesting	Forest Industry	Farmer	Individual	Corporate	Other	Total
			OWNERS			
Timber immature	-	-	700	-	100	800
No market	-	W	500	-	100	600
Price too low	-	-	600	-	100	700
Destroy hunting	-	100	1,600	W	200	1,900
Selling the land	-	-	14,300	-	-	14,300
Ruin scenery	-	-	800	-	600	1,400
Land in estate	-	-	100	-	-	100
Distrust loggers	-	-	700	-	-	700
Opposed to harvest	-	W	100	-	-	100
Poor quality	W	600	19,500	W	2,900	23,000
Low volume	-	800	12,900	-	-	13,700
Fire hazard	-	-	300	-	-	300
Insufficient area	-	600	14,400	-	4,800	19,800
Other	100	100	6,800	200	W	7,200
No answer	-	-	700	-	-	700
Total	100	2,200	74,000	200	8,800	85,300
			ACRES OWNED			
Timber immature	-	-	23,300	-	5,000	28,300
No market	-	5,100	14,700	-	5,400	25,200
Price too low	-	-	34,400	-	9,400	43,800
Destroy hunting	-	5,000	53,500	4,800	25,200	88,500
Selling the land	-	-	92,000	-	-	92,000
Ruin scenery	-	-	35,700	-	15,400	51,100
Land in estate	-	-	5,400	-	-	5,400
Distrust loggers	-	-	41,100	-	-	41,100
Opposed to harvest	-	8,300	4,800	-	-	13,100
Poor quality	31,200	23,800	215,900	8,300	28,800	308,000
Low volume	-	8,300	159,100	-	-	167,400
Fire hazard	-	-	5,100	-	-	5,100
Insufficient area	-	9,900	65,100	-	9,500	84,500
Other	5,400	26,400	145,600	16,100	33,900	227,400
No answer	-	-	46,100	-	-	46,100
Total	36,600	86,800	941,800	29,200	132,600	1,227,000

W-Fewer than 50 owners or less than 0.5 percent.

Table 27.--Estimated number of private ownership units who have not harvested timber and acres of timberland owned, by reason for not harvesting and region, Maine, 1982

Reason for not harvesting	Nonharvesters		Sampling error	Acres owned		Sampling error
	Number	Percent	Percent	Number	Percent	Percent
			COASTAL REGION			
Timber immature	700	1	72	20,000	3	50
No market	600	1	85	25,200	3	45
Price too low	200	W	66	14,800	2	78
Destroy hunting	600	1	60	24,600	3	45
Selling the land	11,400	17	50	73,400	10	30
Ruin scenery	700	1	61	34,500	5	38
Land in estate	100	W	134	5,400	1	105
Distrust loggers	400	1	53	24,500	3	55
Opposed to harvest	100	W	138	4,800	1	101
Poor quality	15,100	23	45	124,200	17	22
Low volume	10,200	15	41	99,400	14	26
Fire hazard	300	W	84	5,100	1	99
Insufficient area	19,500	29	44	78,300	11	32
Other	6,800	10	41	175,600	24	20
No answer	500	1	68	19,100	2	64
Total	67,200	100	19.5	728,900	100	11.6
			INTERIOR REGION			
Timber immature	100	1	94	8,300	2	103
No market	-	-	-	-	-	-
Price too low	500	3	63	29,000	6	60
Destroy hunting	1,300	7	62	63,900	13	41
Selling the land	2,900	16	89	18,600	4	74
Ruin scenery	700	3	76	16,600	3	76
Land in estate	-	-	-	-	-	-
Distrust loggers	300	2	80	16,600	3	73
Opposed to harvest	W	W	97	8,300	2	104
Poor quality	7,900	43	45	183,800	37	28
Low volume	3,500	20	57	68,000	14	39
Fire hazard	-	-	-	-	-	-
Insufficient area	300	2	93	6,200	1	108
Other	400	2	60	51,800	10	45
No answer	200	1	100	27,000	5	60
Total	18,100	100	27.0	498,100	100	18.8
			STATE TOTAL			
Timber immature	800	1	65	28,300	2	46
No market	600	1	81	25,200	2	45
Price too low	700	1	51	43,800	4	48
Destroy hunting	1,900	2	45	88,500	7	32
Selling the land	14,300	16	44	92,000	8	28
Ruin scenery	1,400	2	48	51,100	4	35
Land in estate	100	W	99	5,400	W	99
Distrust loggers	700	1	47	41,100	3	44
Opposed to harvest	100	1	90	13,100	1	76
Poor quality	23,000	27	33	308,000	25	19
Low volume	13,700	15	34	167,400	14	22
Fire hazard	300	1	99	5,100	W	99
Insufficient area	19,800	23	43	84,500	7	30
Other	7,200	8	39	227,400	19	19
No answer	700	1	56	46,100	4	44
Total	85,300	100	16.4	1,227,000	100	10.3

W-Fewer than 50 owners or less than 0.5 percent.

Table 28.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest and by harvesters and nonharvesters, Maine, 1982

Expected time of future harvest	Private ownership units			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
			HARVESTERS			
1-10 years	55,500	58	10	13,974,100	92	2
Indefinite	32,800	34	33	922,400	6	12
Never	3,400	4	39	98,300	1	27
No answer	3,900	4	39	148,300	1	24
Total	95,600	100	12.6	15,143,100	100	.9
			NONHARVESTERS			
1-10 years	16,600	19	33	394,100	32	17
Indefinite	40,600	48	26	523,800	43	13
Never	27,400	32	28	255,100	21	19
No answer	700	1	54	54,000	4	36
Total	85,300	100	16.4	1,227,000	100	10.3
			ALL PRIVATE OWNERS			
1-10 years	72,100	40	11	14,368,200	88	1
Indefinite	73,400	41	20	1,446,200	9	10
Never	30,800	17	26	353,400	2	16
No answer	4,600	2	34	202,300	1	20
Total	180,900	100	9.9	16,370,100	100	.3

Table 29.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest and by harvesters and nonharvesters, Coastal Region, Maine, 1982

Expected time of future harvest	Private ownership units			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
			HARVESTERS			
1-10 years	30,200	54	11	3,242,700	86	4
Indefinite	20,300	36	48	412,100	11	12
Never	2,600	5	48	59,200	1	32
No answer	2,800	5	52	73,900	2	30
Total	55,900	100	18.4	3,787,900	100	2.3
			NONHARVESTERS			
1-10 years	12,800	19	41	228,900	31	20
Indefinite	32,200	48	31	288,200	40	14
Never	21,700	32	33	176,400	24	22
No answer	500	1	70	35,400	5	39
Total	67,200	100	19.5	728,900	100	11.6
			ALL PRIVATE OWNERS			
1-10 years	43,000	35	14	3,471,600	77	3
Indefinite	52,500	42	26	700,300	16	10
Never	24,300	20	29	235,600	5	19
No answer	3,300	3	45	109,300	2	24
Total	123,100	100	13.2	4,516,800	100	.7

Table 30.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest and by harvesters and nonharvesters, Interior Region, Maine, 1982

Expected time of future harvest	Private ownership units			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
			HARVESTERS			
1-10 years	25,300	64	17	10,731,400	95	2
Indefinite	12,300	31	37	510,400	4	20
Never	800	2	52	39,100	W	49
No answer	1,300	3	39	74,300	1	36
Total	39,700	100	15.6	11,355,200	100	.9
			NONHARVESTERS			
1-10 years	3,800	21	41	165,200	33	30
Indefinite	8,600	47	39	235,500	47	23
Never	5,700	32	59	78,700	16	38
No answer	W	W	87	18,700	4	73
Total	18,100	100	27.0	498,100	100	18.8
			ALL PRIVATE OWNERS			
1-10 years	29,100	50	16	10,896,600	92	2
Indefinite	20,900	36	27	745,900	6	17
Never	6,500	12	52	117,800	1	31
No answer	1,300	2	39	93,000	1	33
Total	57,800	100	13.3	11,853,300	100	.4

W-Fewer than 50 owners or less than 0.5 percent.

Table 31.--Estimated number of private ownership units and acres of timberland owned, by size class and expected time of future harvest, Maine, 1982

Size class (acres)	Expected time of future harvest									
	Next 10 years		Indefinite		Never		No answer		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
					OWNERS					
1-9	26,200	36	49,600	68	23,600	77	1,400	30	100,800	55
10-19	8,100	11	6,000	8	2,800	9	400	7	17,300	10
20-49	13,800	19	10,600	14	3,100	10	1,300	28	28,800	16
50-99	13,000	18	3,500	5	900	3	700	14	18,100	10
100-199	6,300	9	2,000	3	300	1	700	17	9,300	5
200-499	3,200	4	1,500	2	100	W	100	4	4,900	3
500-999	800	2	200	W	W	W	-	-	1,000	1
1000-4999	400	1	W	W	-	-	W	W	400	W
5000+	300	W	-	-	W	W	-	-	300	W
Total	72,100	100	73,400	100	30,800	100	4,600	100	180,900	100
					ACRES OWNED					
1-9	122,200	1	121,600	8	73,000	20	9,500	5	326,300	2
10-19	111,000	1	59,700	4	35,100	10	4,900	2	210,700	1
20-49	439,000	3	291,500	20	88,000	25	37,700	19	856,200	5
50-99	767,000	5	224,200	15	52,900	15	46,900	23	1,091,000	7
100-199	834,600	6	270,800	19	38,400	11	48,700	24	1,192,500	7
200-499	853,700	6	334,300	23	37,800	11	25,500	13	1,251,300	7
500-999	373,000	3	80,300	6	18,300	5	-	-	471,600	3
1000-4999	315,900	2	63,800	5	-	-	29,100	14	408,800	2
5000+	10,551,800	73	-	-	9,900	3	-	-	10,561,700	66
Total	14,368,200	100	1,446,200	100	353,400	100	202,300	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 32.--Estimated number of private ownership units who have harvested timber and acres of timberland owned, by individual selecting timber and method of selecting timber, Maine, 1982

Individual selecting timber	Selection	Diameter limit	Clear-cutting	Land clearing	Other	Combination of methods	Don't know	No answer	Total
				HARVESTERS					
Landowner	10,300	9,200	4,200	19,000	16,500	3,400	600	800	64,000
Forester	3,300	700	W	-	200	400	-	W	4,600
Buyer	900	3,100	3,200	400	600	300	1,000	100	9,600
Landowner/forester	500	W	W	-	100	800	W	-	1,400
Landowner/buyer	1,000	1,500	300	W	3,400	1,300	-	-	7,500
Forester/buyer	W	500	-	-	100	100	-	-	700
Other[a]	600	400	800	500	500	100	100	-	3,000
No Answer	-	100	100	100	100	1,300	-	3,100	4,800
Total	16,600	15,500	8,600	20,000	21,500	7,700	1,700	4,000	95,600
				ACRES OWNED					
Landowner	448,300	813,900	255,200	237,300	429,100	308,300	36,200	98,200	2,626,500
Forester	609,900	2,074,900	4,800	-	579,100	3,368,600	-	652,200	7,289,500
Buyer	46,000	193,700	152,400	15,000	50,100	28,800	55,300	8,300	549,600
Landowner/forester	84,300	14,500	5,400	-	23,000	185,000	5,100	-	317,300
Landowner/buyer	48,500	186,800	22,800	10,400	20,400	973,500	-	-	1,262,400
Forester/buyer	5,100	220,800	-	-	5,100	2,208,100	-	-	2,439,100
Other[a]	43,800	44,000	15,000	9,900	19,900	81,400	14,300	-	228,300
No Answer	-	5,000	18,700	5,100	10,400	6,200	-	385,000	430,400
Total	1,285,900	3,553,600	474,300	277,700	1,137,100	7,159,900	110,900	1,143,700	15,143,100

[a]Includes friend, landowner/friend, friend/buyer.
W-Fewer than 50 owners or less than 0.5 percent.

Table 33.--Estimated number of private ownership units and acres of timberland owned, by timber product harvested, forest industry, and private land owners (size class ownership), Maine, 1982

Timber products	Forest industry		Nonindustrial private landowners						Total	
			1 - 49 acres		50 - 499 acres		500+ acres			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
					OWNERS					
Fuelwood-personal	100	50	46,400	69	21,800	80	1,000	77	69,300	72
Fuelwood-sale	100	50	3,000	4	6,200	23	800	62	10,100	11
Sawlogs	200	100	8,400	13	12,800	47	900	69	22,300	23
Pulpwood	200	100	27,900	42	14,400	53	900	69	43,400	45
Other-personal	100	50	11,300	17	9,000	33	400	31	20,800	22
Other products-sale	100	50	2,000	3	2,000	7	400	31	4,500	5
Don't know	0	0	300	W	100	W	0	0	400	W
Total[a]	200	100	67,000	100	27,100	100	1,300	100	95,600	100
					ACRES OWNED					
Fuelwd-personal	4,539,600	57	636,000	77	2,370,500	78	673,600	20	8,219,700	54
Fuelwood-sale	7,859,200	98	84,400	10	790,200	26	2,691,800	82	11,425,600	75
Sawlogs	7,980,300	100	217,400	26	1,639,500	54	2,947,000	89	12,784,200	84
Pulpwood	7,875,800	99	269,900	33	1,807,800	59	2,958,800	90	12,912,300	85
Other-personal	3,351,300	42	117,200	14	1,048,800	34	347,400	10	4,864,700	32
Other-sale	7,814,200	98	48,800	6	341,100	11	2,355,800	71	10,559,900	70
Don't know	0	0	10,400	1	21,400	1	0	0	31,800	W
Total[a]	7,980,300	100	827,500	100	3,038,300	100	3,297,000	100	15,143,100	100

[a]Items do not add to totals because some owners harvested more than one product.
W-Fewer than 50 owners or less than 0.5 percent.

Table 34.--Estimated number of private ownership units and acres of timberland owned, by agency that owners would contact for forestry assistance, and size class of ownership, Maine, 1982

Agency	Forest industry		Nonindustrial private landowners						Total	
			1 - 49 acres		50 - 499 acres		500+ acres			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
					OWNERS					
County or district forester	W	W	3,900	3	1,100	3	100	7	5,100	3
State forester	100	33	19,000	13	8,500	26	300	20	27,900	16
Soil Conservation Service	0	0	1,500	1	500	2	W	W	2,000	1
U.S. Forest Service	W	W	5,300	4	700	2	W	W	6,000	3
Agricultural Stabilization and Conservation Service	W	W	600	W	700	2	100	7	1,400	1
Consultant or industry forester	100	33	2,300	1	3,000	9	100	7	5,500	3
Extension service	W	W	1,000	1	700	2	100	6	1,800	1
Other	100	34	3,700	2	500	2	W	W	4,300	2
Don't know	W	W	86,600	59	11,100	35	300	20	98,000	54
No answer	W	W	23,000	16	5,400	17	500	33	28,900	16
Total	300	100	146,900	100	32,200	100	1,500	100	180,900	100
					ACRES OWNED					
County or district forester	15,400	W	26,000	2	98,700	3	44,600	1	184,700	1
State forester	652,000	8	265,300	19	924,500	26	1,455,000	42	3,296,800	20
Soil Conservation Service	0	0	23,200	2	76,700	2	11,300	W	111,200	1
U.S. Forest Service	1,278,200	16	26,400	2	87,000	3	18,600	1	1,410,200	9
Agricultural Stabilization and Conservation Service	76,700	1	17,500	1	77,900	2	21,400	1	193,500	1
Consultant or industry forester	4,879,000	61	55,100	4	310,000	9	256,400	8	5,500,500	33
Extension service	5,400	W	15,200	1	100,900	3	42,700	1	164,200	1
Other	5,400	W	34,100	2	67,600	2	29,700	1	136,800	1
Don't know	45,500	1	647,200	47	1,130,500	32	166,500	5	1,989,700	12
No answer	1,059,300	13	283,200	20	650,600	18	1,389,400	40	3,382,500	21
Total	8,016,900	100	1,393,200	100	3,524,400	100	3,435,600	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 35.--Estimated number of private ownership units and acres of timberland owned, by harvesters and nonharvesters, size class, and decision to seek assistance, Maine, 1982

Assistance	Forest industry		Nonindustrial private landowners						Total		Sampling error
			1 - 49 acres		50 - 499 acres		500+ acres				
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Percent
					HARVESTERS						
Sought assistance	200	100	12,500	18	11,300	41	700	54	24,700	26	14
No assistance	W	W	54,100	81	15,700	58	600	46	70,400	73	17
No answer	W	W	400	1	100	1	W	W	500	1	58
Total	200	100	67,000	100	27,100	100	1,300	100	95,600	100	12.6
					NONHARVESTERS						
Sought assistance	0	0	8,000	10	1,400	27	100	50	9,500	11	29
No assistance	100	100	66,700	83	3,700	73	100	50	70,600	83	18
No answer	0	0	5,200	7	W	W	0	0	5,200	6	93
Total	100	100	79,900	100	5,100	100	200	100	85,300	100	16.4
					TOTAL						
Sought assistance	200	67	20,500	14	12,700	39	800	53	34,200	19	
No assistance	100	33	120,800	82	19,400	60	700	47	141,000	78	
No answer	0	0	5,600	4	100	1	0	W	5,700	3	
Total	300	100	146,900	100	32,200	100	1,500	100	180,900	100	9.9

Table 35.--Continued

Assistance	Forest industry		Nonindustrial private landowners						Total		Sampling error
			1 - 49 acres		50 - 499 acres		500+ acres				
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Percent
					ACRES OWNED BY HARVESTERS						
Sought assist.	7,620,500	95	228,500	28	1,323,900	44	2,744,500	83	11,917,400	79	4
No assistance	72,300	1	588,900	71	1,704,200	56	287,900	9	2,653,300	17	8
No answer	287,500	4	10,100	1	10,200	W	264,600	8	572,400	4	51
Total	7,980,300	100	827,500	100	3,038,300	100	3,297,000	100	15,143,100	100	.9
					NONHARVESTERS						
Sought assistance	0	0	107,600	19	140,500	29	46,100	33	294,200	24	16
No assistance	36,600	100	448,400	79	340,500	70	92,500	67	918,000	75	12
No answer	0	0	9,700	2	5,100	1	0	0	14,800	1	58
Total	36,600	100	565,700	100	486,100	100	138,600	100	1,227,000	100	10.3
					TOTAL						
Sought assist.	7,620,500	95	336,100	24	1,464,400	42	2,790,600	81	12,211,600	75	
No assistance	108,900	1	1,037,300	75	2,044,700	58	380,400	11	3,571,300	22	
No answer	287,500	4	19,800	1	15,300	W	264,600	8	587,200	3	
Total	8,016,900	100	1,393,200	100	3,524,400	100	3,435,600	100	16,370,100	100	.3

W-Fewer than 50 owners or less than 0.5 percent.

Table 36.--Estimated number of private ownership units and acres of timberland owned, by agency that owners would contact for forestry assistance, and decision to seek assistance, Maine, 1982

Agency	Sought assistance		No assistance		No answer		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
			OWNERS					
County or district forester	1,800	5	3,300	2	-	-	5,100	3
State forestry	12,000	35	15,900	11	-	-	27,900	15
Soil Conservation Service	900	3	1,100	1	-	-	2,000	1
Forest Service	1,500	4	4,500	3	-	-	6,000	4
Agricultural Stabilization and Conservation Service	600	2	800	1	-	-	1,400	1
Consultant or industry forester	3,900	12	1,600	1	-	-	5,500	3
Extension service	300	1	1,500	1	-	-	1,800	1
Other	1,300	4	3,000	2	-	-	4,300	2
Don't know	8,000	23	90,000	64	-	-	98,000	54
No answer	3,900	11	19,300	14	5,700	100	28,900	16
Total	34,200	100	141,000	100	5,700	100	180,900	100
			ACRES OWNED					
County or district forester	108,600	1	76,100	2	-	-	184,700	1
State forestry	2,807,700	23	489,100	14	-	-	3,296,800	20
Soil Conservation Service	63,600	W	47,600	1	-	-	111,200	1
Forest Service	1,380,100	11	30,100	1	-	-	1,410,200	9
Agricultural Stabilization and Conservation Service	122,200	1	71,300	2	-	-	193,500	1
Consultant or industry forester	5,338,200	44	162,300	5	-	-	5,500,500	33
Extension service	88,500	1	75,700	2	-	-	164,200	1
Other	91,300	1	45,500	1	-	-	136,800	1
Don't know	243,500	2	1,746,200	49	-	-	1,989,700	12
No answer	1,967,800	16	827,600	23	587,100	100	3,382,500	21
Total	12,211,500	100	3,571,500	100	587,100	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 37.--Estimated number of private ownership units who have received forestry assistance and acres of timberland owned, by type of assistance, Maine, 1982

Type of assistance	Owners assisted		Acres owned	
	Number	Percent	Number	Percent
Information about forestry	13,700	8	6,847,300	42
Help with tree planting	7,100	4	6,518,600	40
General forest management	16,900	9	8,313,600	51
Help with timber sales	4,700	3	1,897,100	12
Help with insects or diseases	4,800	3	1,133,700	7
Other	800	W	1,433,100	9
Total[a]	34,200	19	12,211,600	75
No answer	146,700	81	4,158,500	25

[a]Individual items do not add to total because some owners have received more than one type of assistance.
W-Fewer than 50 owners or less than 0.5 percent.

Table 38.--Estimated number of private ownership units and acres of timberland owned, by availability for recreation, Maine, 1982

Recreation availability	Private owners			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
Owner permits recreation and does not recreate	26,200	15	27	1,414,400	9	18
Owner recreates and permits recreation	69,200	38	14	12,490,700	76	4
Owner recreates and excludes others recreation	36,700	20	20	973,100	6	11
Owner recreates and did not answer on availability	200	W	99	28,700	W	82
Subtotal recreation	132,300	73		14,906,900	91	2
Recreation not permitted	39,500	22	27	796,100	5	12
No answer	9,100	5	60	667,100	4	44
Total	180,900	100	9.9	16,370,100	100	.3

W-Fewer than 50 owners or less than 0.5 percent.

Table 39.--Estimated number of private ownership units and acres of timberland owned, by type of recreational use by the owner, the owner's family, or immediate circle of friends, Maine, 1982

Recreation by owner, family, and friends	Private owners			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
Hiking	63,400	35	15	10,884,100	66	5
Picnicking	40,200	22	21	9,769,800	60	6
Camping	29,500	16	26	9,691,300	59	6
Hunting	50,000	28	16	12,260,700	75	4
Snowmobiling	33,500	19	18	10,572,000	65	6
Cross country skiing	29,200	16	15	9,960,800	61	6
Other	23,300	13	25	5,929,500	36	13
Any recreation[a]	106,100	59	11.4	13,492,500	82	3
No answer	74,800	41	19	2,877,600	18	13
Total	180,900	100	9.9	16,370,100	100	.3

[a]Columns do not add to total because some owners permit more than one type of use.

Table 40.--Estimated number of private ownership units and acres of timberland owned, by type of public use permitted, Maine, 1982

Type of public use	Private owners			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
Hiking	44,200	24	20	11,985,000	73	4
Picnicking	26,100	14	23	11,090,900	68	4
Camping	15,600	9	32	10,728,700	66	5
Hunting	75,000	41	14	13,264,900	81	3
Snowmobiling	56,500	31	16	12,676,000	77	3
Cross country skiing	34,500	19	19	11,710,000	72	4
Other	12,800	7	31	6,398,200	39	13
All types[a]	95,400	53	12.6	13,905,100	85	2.5
Public use not permitted	76,200	42	17	1,769,200	11	9
No answer	9,300	5	59	695,800	4	42
Total	180,900	100	9.9	16,370,100	100	.3

[a]Columns do not add to total because some owners permit more than one type of use.

Table 41.--Estimated number of private ownership units and acres of timberland owned, by availability for public recreational use and region, Maine, 1982

Recreational use	Coastal Region		Interior Region		Total	
	Number	Percent	Number	Percent	Number	Percent
			OWNERS			
Public use:						
Hiking	30,600	25	13,600	24	44,200	24
Hunting	50,000	41	25,000	43	75,000	41
Snowmobiling	36,500	30	20,000	35	56,500	31
All types[a]	60,100	49	35,300	61	95,400	53
Public use not permitted	54,600	44	21,600	37	76,200	42
No answer	8,400	7	900	2	9,300	5
Total	123,100	100	57,800	100	180,900	100
			ACRES OWNED			
Public use:						
Hiking	2,493,100	55	9,491,900	80	11,985,000	73
Hunting	3,094,500	69	10,170,400	86	13,264,900	81
Snowmobiling	2,786,100	62	9,889,900	83	12,676,000	77
All types[a]	3,371,100	75	10,534,000	89	13,905,100	85
Public use not permitted	1,009,100	22	760,100	6	1,769,200	11
No answer	136,600	3	559,200	5	695,800	4
Total	4,516,800	100	11,853,300	100	16,370,100	100

[a]Columns do not add to total because some owners permit more than one type of use.

Table 42.--Estimated number of private ownership units and acres of timberland owned by recreational use by the owner, the owner's family or immediate circle of friends and by geographic region, Maine, 1982

Recreational use	Down East	Capital Region	Casco Bay	Coastal total	North East	North West	Interior total	State total	Percent
				OWNERS					
Owner recreation:									
Hiking	10,800	14,000	16,500	41,300	9,800	12,300	22,100	63,400	35
Hunting	5,600	16,400	11,700	33,700	10,600	5,700	16,300	50,000	28
Snowmobiling	2,700	12,400	5,300	20,400	7,600	5,500	13,100	33,500	19
All types[a]	18,500	26,600	26,200	71,300	16,800	18,000	34,800	106,100	59
No answer	22,400	12,100	17,300	51,800	12,100	10,900	23,000	74,800	41
Total	40,900	38,700	43,500	123,100	28,900	28,900	57,800	180,900	
				ACRES OWNED					
Owner recreation:									
Hiking	1,114,900	534,700	502,500	2,152,100	5,669,500	3,062,500	8,732,000	10,884,100	66
Hunting	1,713,000	650,700	483,900	2,847,600	6,068,900	3,344,200	9,413,100	12,260,700	75
Snomobiling	1,106,200	429,900	401,700	1,937,800	5,699,700	2,934,500	8,634,200	10,572,000	65
All types[a]	1,846,500	901,900	801,300	3,549,700	6,329,400	3,613,400	9,942,800	13,492,500	82
No answer	296,700	233,500	436,900	967,100	1,180,100	730,400	1,910,500	2,877,600	18
Total	2,143,200	1,135,400	1,238,200	4,516,800	7,509,500	4,343,800	11,853,300	16,370,100	

[a]Columns do not add to total because some owners permit more than one type of use.

Table 43.--Estimated number of private ownership units and acres of timberland owned, by availability for recreational use and size class, Maine, 1982

Availability for recreation	1 - 49 acres		50 - 499 acres		500+ acres		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
				OWNERS				
Public permitted	71,200	48	22,800	71	1,400	82	95,400	53
Not permitted	67,400	46	8,500	26	300	18	76,200	42
No answer	8,300	6	1,000	3	W	W	9,300	5
Total	146,900	100	32,300	100	1,700	100	180,900	100
				ACRES OWNED				
Public permitted	735,900	53	2,462,400	70	10,706,800	94	13,905,100	85
Not permitted	620,700	44	983,300	28	165,200	1	1,769,200	11
No answer	36,600	3	89,100	2	570,100	5	695,800	4
Total	1,393,200	100	3,534,800	100	11,442,100	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 44.--Estimated number of private ownership units and acres of timberland owned, by availability for hunting, Maine, 1982

Hunting availability	Private owners			Acres owned		
	Number	Percent	Sampling error(%)	Number	Percent	Sampling error(%)
Owner permits hunting and does not hunt	40,700	22	23	1,577,700	10	16
Owner hunts and permits hunting	34,300	19	17	11,687,300	71	4
Owner hunts and did not answer on availability	15,700	9	34	573,500	4	14
Subtotal hunting	90,700	50	15	13,838,500	85	3
No answer	90,200	50	15	2,531,600	15	14
Total	180,900	100	9.9	16,370,100	100	.3

Table 45.--Estimated number of private ownership units and acres of timberland owned, by reason for posting and use permitted, Maine, 1982

Reason for posting	Public permitted		Not permitted		No answer		Total		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Sampling error(%)
				OWNERS					
Abuse of property	1,500	2	2,600	3	-	-	4,100	2	20
Safety	2,200	2	12,100	16	-	-	14,300	8	42
Liability	200	W	300	W	W	W	500	W	52
Control access	1,900	2	2,800	4	-	-	4,700	3	40
Control hunting	300	W	1,200	2	-	-	1,500	1	64
Reason not specified	600	1	300	W	4,800	52	5,700	3	85
All reasons	6,700	7	19,300	25	4,800	52	30,800	17	25.9
Land not posted	88,700	93	56,200	74	3,700	40	148,600	82	11
No answer	-	-	700	1	800	8	1,500	1	38
Total	95,400	100	76,200	100	9,300	100	180,900	100	9.9
				ACRES OWNED					
Abuse of property	341,200	2	193,000	11	-	-	534,200	3	14
Safety	134,700	1	217,600	12	-	-	352,300	2	15
Liability	27,900	W	13,100	1	20,400	3	61,400	W	44
Control access	56,600	W	88,000	5	-	-	144,600	1	22
Control hunting	70,100	1	50,900	3	-	-	121,000	1	27
Reason not specified	63,000	1	9,900	1	4,800	1	77,700	1	34
All reasons	693,500	5	572,500	32	25,200	4	1,291,200	8	9.8
Land not posted	13,211,700	95	1,186,800	67	69,800	10	14,468,300	88	2
No answer	-	-	9,900	1	600,700	86	610,600	4	48
Total	13,905,200	100	1,769,200	100	695,700	100	16,370,100	100	.3

W-Fewer than 50 owners or less than 0.5 percent.

Table 46.--Estimated number of private ownership units and acres of timberland owned, by whether land is posted and geographic region, Maine, 1982

Posted status	Down East	Capitol Region	Casco Bay	Coastal total	North East	North West	Interior total	State total
				OWNERS				
Posted	2,400	13,900	9,400	25,700	2,300	2,800	5,100	30,800
Not posted	38,300	24,400	33,500	96,200	26,300	26,100	52,400	148,600
No answer	200	400	600	1,200	300	W	300	1,500
Total	40,900	38,700	43,500	123,100	28,900	28,900	57,800	180,900
				ACRES OWNED				
Posted	113,300	314,000	194,100	621,400	396,400	273,400	669,800	1,291,200
Not posted	1,970,400	805,200	1,018,800	3,794,400	6,840,800	3,833,100	10,673,900	14,468,300
No answer	59,500	16,200	25,300	101,000	272,300	237,300	509,600	610,600
Total	2,143,200	1,135,400	1,238,200	4,516,800	7,509,500	4,343,800	11,853,300	16,370,100

W-Fewer than 50 owners or less than 0.5 percent.

Table 47.--Estimated number of private ownership units and acres of timberland owned, by size class and whether land is posted, Maine, 1982

Posted status	1 - 49 acres		50 - 499 acres		500+ acres		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
				OWNERS				
Posted	23,600	16	6,900	21	300	18	30,800	17
Not posted	122,400	83	24,800	77	1,400	82	148,600	82
No answer	900	1	600	2	W	W	1,500	1
Total	146,900	100	32,300	100	1,700	100	180,900	100
				ACRES OWNED				
Posted	176,200	13	771,600	22	343,400	3	1,291,200	8
Not posted	1,202,100	86	2,712,200	77	10,554,000	92	14,468,300	88
No answer	14,900	1	51,000	1	544,700	5	610,600	4
Total	1,393,200	100	3,534,800	100	11,442,100	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 48.-Estimated number of acres of private timberland owned by expected time of future harvest, size class and availability for harvesting, Maine, 1982

Time of future harvest	Forest Industry		Nonindustrial private landowners						Total	
			1 - 49 acres		50 - 499 acres		500+ acres			
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
1 - 10 years:										
Available	7,830,900	98	562,000	40	2,200,500	63	3,155,300	92	13,748,700	84
Other	180,900	2	110,200	8	249,500	7	78,900	2	619,500	4
Total	8,011,800	100	672,200	48	2,450,000	70	3,234,200	94	14,368,200	88
Sometime:										
Available	-	-	372,700	27	748,000	21	128,700	4	1,249,400	8
Other	-	-	100,100	7	81,300	2	15,400	W	196,800	1
Total	-	-	472,800	34	829,300	23	144,100	4	1,446,200	9
Never	-	-	196,100	14	129,100	4	28,200	1	353,400	2
No answer	5,100	W	52,100	4	116,000	3	29,100	1	202,300	1
Total	8,016,900	100	1,393,200	100	3,524,400	100	3,435,600	100	16,370,100	100

W-Fewer than 50 owners or less than 0.5 percent.

Table 49.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest, by subregions, Coastal Region, Maine, 1982

Expected time of future harvest	Private ownership units			Acres owned		
	Number	Percent	Sampling error (%)	Number	Percent	Sampling error (%)
			CAPITAL REGION			
1-10 years	18,900	49	27	811,800	71	4
Indefinite	13,300	34	42	222,200	20	13
Never	5,300	14	47	67,600	6	26
No answer	1,200	3	48	33,800	3	37
Total	38,700	100	20	1,135,400	100	1.2
			CASCO BAY			
1-10 years	15,300	35	19	772,900	63	5
Indefinite	18,200	42	34	333,800	27	11
Never	9,400	22	41	91,000	7	23
No answer	600	1	52	40,500	3	35
Total	43,500	100	17.2	1,238,200	100	1.3
			DOWN EAST			
1-10 years	8,800	22	18	1,886,900	88	4
Indefinite	20,900	51	53	144,300	7	34
Never	9,600	23	57	77,000	3	45
No answer	1,600	4	84	35,000	2	53
Total	40,900	100	29.7	2,143,200	100	1.1
			TOTAL			
1-10 years	43,000	35	14	3,471,600	77	3
Indefinite	52,400	42	26	700,300	16	10
Never	24,300	20	29	235,600	5	19
No answer	3,400	3	45	109,300	2	24
Total	123,100	100	13.2	4,516,800	100	.7

Table 50.--Estimated number of private ownership units and acres of timberland owned, by expected time of future harvest, by subregions, Interior Region, Maine, 1982

Expected time of future harvest	Private ownership units			Acres owned		
	Number	Percent	Sampling error (%)	Number	Percent	Sampling error (%)
			NORTH EAST			
1-10 years	12,800	44	18	6,923,500	92	2
Indefinite	11,900	41	38	458,100	6	23
Never	3,200	11	66	68,100	1	41
No answer	1,000	4	48	59,800	1	41
Total	28,900	100	18.4	7,509,500	100	.6
			NORTH WEST			
1-10 years	16,300	56	24	3,973,100	91	2
Indefinite	9,000	31	37	287,800	7	25
Never	3,400	12	77	49,700	1	46
No answer	200	1	82	33,200	1	55
Total	28,900	100	19.1	4,343,800	100	.5
			TOTAL			
1-10 years	29,100	50	16	10,896,600	92	2
Indefinite	20,900	36	27	745,900	6	17
Never	6,600	12	52	117,800	1	31
No answer	1,200	2	39	93,000	1	33
Total	57,800	100	13.3	11,853,300	100	.4

Table 51.--Estimated number of private ownnership units and acres of timberland owned, by opinion question statement number and response to statement, Maine, 1982

Statement number	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	No answer	All responses
			OWNERS				
1	22,000	63,700	72,100	5,800	700	16,600	180,900
2	20,400	46,200	27,000	61,500	10,100	15,700	180,900
3	2,500	17,700	119,700	19,900	4,600	16,500	180,900
4	12,900	40,700	49,900	51,000	10,000	16,400	180,900
5	19,900	39,500	43,100	52,100	9,700	16,600	180,900
6	11,400	26,900	29,000	68,700	28,300	16,600	180,900
7	7,000	9,700	44,500	59,100	44,100	16,500	180,900
8	24,900	47,600	45,800	39,600	6,800	16,200	180,900
9	12,500	41,600	40,500	63,400	6,500	16,400	180,900
10	1,300	9,500	121,900	23,500	8,400	16,300	180,900
11	3,900	56,400	99,700	3,400	900	16,600	180,900
12	2,900	36,800	89,700	31,800	3,400	16,300	180,900
			ACRES OWNED				
1	2,167,000	6,150,000	4,386,200	2,418,600	235,000	1,013,300	16,370,100
2	5,878,500	4,542,600	1,956,900	1,991,400	548,900	1,451,800	16,370,100
3	72,600	2,753,900	6,480,600	4,951,500	649,400	1,462,100	16,370,100
4	1,792,300	6,587,500	4,824,600	1,115,400	542,000	1,508,300	16,370,100
5	3,228,200	5,259,300	4,281,700	1,540,900	628,900	1,431,100	16,370,100
6	515,200	2,340,200	7,409,000	3,315,900	995,900	1,793,900	16,370,100
7	209,700	404,000	2,762,900	3,901,900	7,660,600	1,431,000	16,370,100
8	2,638,700	2,912,600	3,523,900	4,598,600	1,364,500	1,331,800	16,370,100
9	595,700	1,073,500	1,708,100	3,657,900	7,888,200	1,446,700	16,370,100
10	917,500	5,838,600	5,185,700	2,318,600	551,200	1,558,500	16,370,100
11	5,395,600	4,340,300	3,738,800	786,900	274,000	1,834,500	16,370,100
12	351,800	962,400	5,671,900	3,212,900	4,701,200	1,469,900	16,370,100

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Birch, Thomas W. The forest-land owners of Maine, 1982. Resour. Bull. NE-90. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 83 p.

A statistical analytical report on a mail canvass of private timberland owners in Maine. The study was conducted in conjunction with the third forest survey of Maine by the USDA Forest Service. It discusses landowner characteristics, attitudes, and intentions of owners regarding reasons for owning, recreational use, timber management, and harvesting.

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Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

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Biomass Statistics for Vermont - 1983

Thomas S. Frieswyk
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Abstract

A new measure of the forest resource has been added to the fourth forest inventory of Vermont. The inventory, which was conducted in 1982-83, included estimates of aboveground tree biomass on timberland. There are approximately 413 million green tons of wood and bark in the aboveground portion of all trees, which equates to an average of 93 green tons per acre statewide. Approximately 51 percent or 212 million green tons is in growing stock and nearly 49 percent or 202 million green tons is nongrowing stock (growing-stock tops, saplings, cull trees, stumps and salvable dead trees).

Foreword

The fourth inventory of Vermont was under the overall direction of Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis Unit. John Peters assisted in the development and administration of the operating plan and had supervisory responsibility for the inventory process. Charles T. Scott was responsible for the design of the inventory and sample selection. David J. Alerich supervised the aerial-photo interpretation and data collection by the field crews. He was assisted by Thomas B. Hartman, Joseph G. Reddan, and Karen Sykes. Members of the field crews were:

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Bryan P. Fay	Craig A. Lambert	Richard R. Reimers
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Alan E. Kinley	Janet S. Palentchar	Theresa R. Wolowic

David R. Dickson and Thomas S. Frieswyk used FINSYS (Forest INventory SYStem), a generalized data processing system, to address the specific informational needs of the Vermont inventory and produced summary tables for the State, geographic sampling units, and counties. Thomas W. Birch and Thomas S. Frieswyk were instrumental in assuring that the area estimates were consistent with three previous inventories. Anne M. Malley assisted in various data processing capacities and prepared and balanced the tables in this report. Margaret Little, Carol McAfee, J. Roger Trettel, and Karen Sykes performed a variety of data editing and compilation tasks.

Robert L. Nevel, Richard H. Widmann, and Eric H. Wharton, with the assistance of William G. Gove, Vermont Department of Forests, Parks and Recreation, collected and compiled the data on timber products output and timber removals.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

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BIOMASS STATISTICS FOR VERMONT – 1983

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Highlights

* There are more than 413 million green tons of aboveground biomass in all trees. Over 98 percent or 407 million green tons is in live trees.

* Two hundred and ten million tons or 51 percent of the net green weight of all trees is in growing stock.

* More than two hundred and three million tons or 49 percent of the net green weight of all trees is in nongrowing stock. Thirty-eight percent of the nongrowing stock is in growing-stock tops, 34 percent is in rough and rotten cull trees, and 21 percent is in saplings and 6 percent is in stumps and salvable dead trees.

* Seventy-one percent or 295 million green tons of the net aboveground biomass of all trees is in hardwoods.

* Net aboveground biomass for all trees averages 93 green tons per acre in Vermont, and ranges from a low of 80 green tons per acre in Franklin/Grand Isle Counties to a high of 105 green tons per acre in Orange County.

* Sawtimber stands contain 297 million green tons or 73 percent of aboveground biomass of all live trees.

* The northern hardwoods forest-type group contains the largest amount of aboveground tree biomass (253 million green tons), but the aspen/birch group is more concentrated (104 green tons per acre of timberland).

* Sugar maple is the leading species in terms of aboveground biomass as well as in cubic-foot volume. It accounts for 23 percent of the aboveground biomass of all live trees. Hemlock is the leading softwood species and accounts for 7 percent of the aboveground biomass.

* Cull and salvable dead trees average 18 green tons per acre of timberland, and range from a low of 9 green tons per acre in Addison County to a high of 33 green tons per acre in Windsor County.

Introduction

The USDA Forest Service completed the fourth inventory of Vermont's forest resources in 1983. Previous inventories were conducted in 1948, 1966, and 1973.

The inventories are conducted under the authority of the McSweeney-McNary Forest Research Act of 1928 and subsequent acts including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978.

The biomass, area, and volume statistics presented in this report are a summary of data collected on new field plots established during the fourth inventory. The new plot sample consisted of 823 ground plots randomly selected from 16,313 photo points classified by land use and cubic-foot volume class.

Data were collected, processed, and analyzed by the Forest Inventory and Analysis staff. A complete list of available biomass tables is included in the appendix of this report. These tables are available on microfiche by state, geographic unit (Fig. 1), and county levels. Other tables or additional information may be developed. For further information, contact the Forest Inventory, Analysis, and Economics Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037).

Figure 1.--Geographic Units.

Background

Traditionally, forest resource data have been collected to describe the forest in terms of its timber production capabilities. Board- and cubic-foot measures of volume (Fig. 2) were and are adequate for that purpose. Today, timber production is still considered by many to be the primary use of forest land, however, many data users are also interested in how the resource can be used for energy production, fiber-based products, wildlife or recreation. Because board-foot and cubic-foot volume estimates do not describe the forest resource broadly enough, biomass estimates have been built into the standard Forest Service inventory procedure (Fig. 2).

Weight equations developed for the major tree species in Maine (Young et al. 1980) were included along with the conventional volume equations used during the compilation of statewide statistics. The weight equations provide an estimate of the above-stump biomass of all trees. Separate techniques had to be used to derive estimates for specific components of trees such as stump biomass (ground level to a 1-foot stump height), merchantable stem biomass (1-foot stump height to a 4-inch top diameter outside bark (d.o.b.) and tops and branches.

Determination of stump biomass involved a two step process. First, the volume in stumps was estimated using regression equations in which diameter at breast height (d.b.h.) was the independent

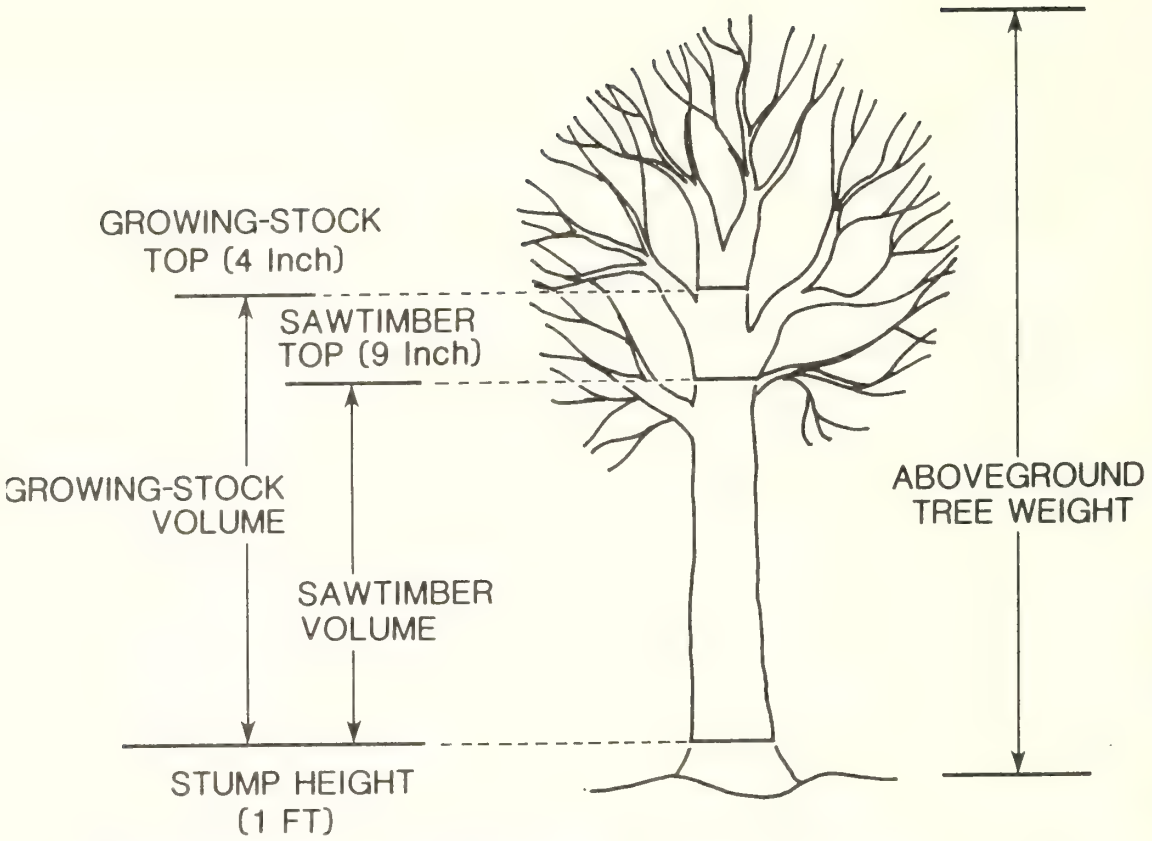

Figure 2.--Volume and weight relationships of hardwood aboveground tree biomass components.

variable (Raile 1982). Then the volumes were converted to weight using species-specifc weight/volume ratios (Markwardt 1930).

The weight of the merchantable stem was calculated by applying weight/volume ratios to estimates of volume. Timber volume was estimated from new equations for both sawtimber and growing stock (Scott 1979, 1981). The difference between above-stump biomass from the weight regression equations and the independent estimate of merchantable stem biomass was the estimate for tops and branches.

Estimates of area, volume, numbers of trees, and aboveground tree biomass have been summarized in this report. The statistics are presented by forest-type group, species or species group, and diameter group; tables are provided by state and county level.

Reliability of Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout Vermont. However, because the field crews did not measure every tree nor examine every acre in the State, the data are estimates. Therefore, zeros in any table cell indicate that the condition did not appear in the sample, or that the amount encountered was negligible. They do not necessarily mean that the condition does not exist.

There are two important sources of error to consider when looking at the estimates provided in this report: (1) the error associated with estimation from sample plots, and (2) the error associated with combining independent estimates. Some of the errors associated with estimation from sample plots are included in the tables and are called sampling error. We are not able

to calculate a value for the error associated with combining independent estimates.

Briefly, here is an example of how the sampling error is used to indicate reliability. The estimate of aboveground biomass of all trees on timberland in Vermont is 413 million green tons. It has an associated sampling error of 1.5 percent, or 6.6 million green tons. This means that if the survey were repeated, the odds are 2 to 1 (66 percent probability) that the estimate would be between 406.4 and 419.6 million green tons (413 $\pm$ 6.6). Similarly, the odds are 19 to 1 (95 percent probability) that the estimate would be within $\pm$ 13.2 million green tons.

State estimates have the smallest sampling errors and therefore are the most reliable. Geographic unit estimates are the next most reliable followed by county estimates. For example, the sampling error of aboveground tree biomass for Vermont is 1.5 percent, while the sampling error for Chittenden County is 7.3 percent. County estimates are expected to be considerably less reliable than state estimates. The state estimates are based on a larger sample than county estimates, and as the sample size used to obtain the estimate decreases in relation to the population size, the sampling error is expected to increase.

Some of the estimates have sampling errors that are greater than 25 percent and may not be usable. A single and double asterisk have been used to denote errors that exceed 25 and 50 percent, respectively. Any estimate with a sampling error of 50 percent or more would not be significantly different from zero, and those estimates with errors between 25 and 50 percent are suspect. Therefore, any estimates that have errors exceeding 25 percent should be used with caution.

The second important source of error occurs when two independent estimates are used to derive a third estimate. The biomass in tops and branches has been derived in this manner. The estimate of the merchantable stem biomass was subtracted from the estimate of total above-stump biomass to yield an estimate of the biomass in tops and branches. Consequently, the estimates of tops and branches should be used with caution.

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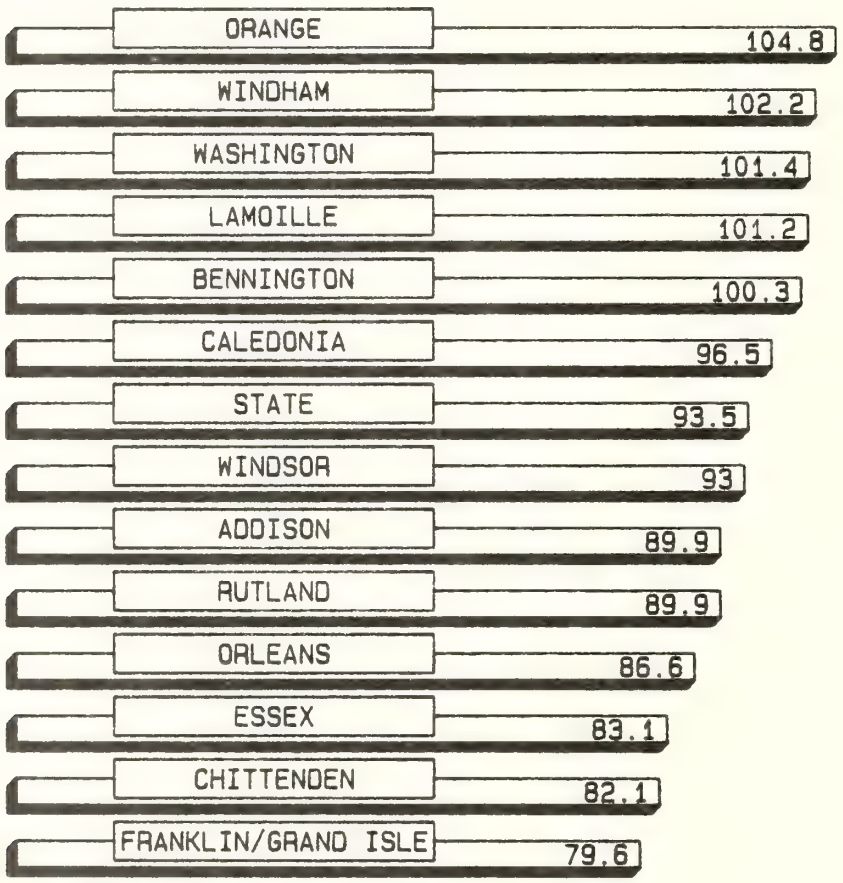
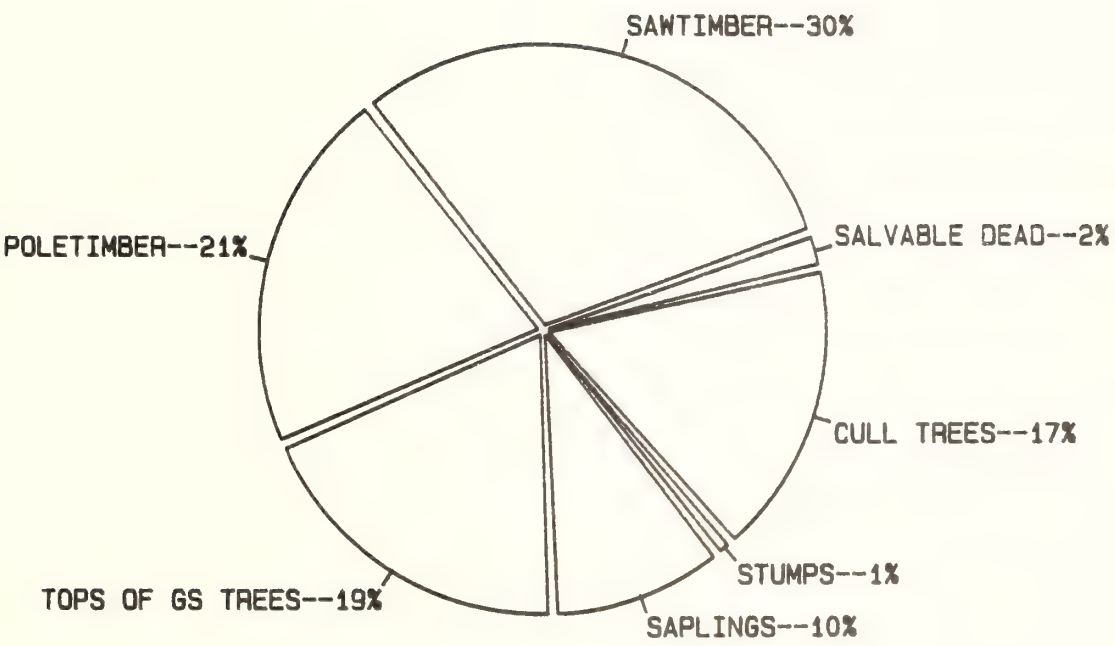
NET ABOVEGROUND TREE BIOMASS PER ACRE of TIMBERLAND

green tons per acre



ABOVEGROUND BIOMASS
of ALL TREES



CLASS OF MATERIAL

Table 1.--Net volume of sawtimber, growing stock, and aboveground tree biomass of all trees on timberland, by county and species group, Vermont, 1983

County	Species group		All species
	Softwoods	Hardwoods	
	SAWTIMBER[a]		
	Million board feet		
Addison	187.7	629.3	817.0
Bennington	128.1	1,272.5	1,400.6
Caledonia	510.6	534.5	1,045.1
Chittenden	105.3	471.7	577.0
Essex	416.7	636.7	1,053.4
Franklin/Grand Isle	383.7	400.2	783.9
Lamoille	177.5	459.4	636.9
Orange	636.4	728.2	1,364.6
Orleans	437.6	262.9	700.5
Rutland	419.5	972.8	1,392.3
Washington	531.1	666.0	1,197.1
Windham	758.3	1,022.8	1,781.1
Windsor	389.8	848.2	1,238.0
All counties	5,082.3	8,905.2	13,987.5
	GROWING STOCK[b]		
	Million cubic feet		
Addison	79.4	316.0	395.4
Bennington	43.6	485.3	528.9
Caledonia	220.0	257.3	477.3
Chittenden	39.4	221.9	261.3
Essex	183.1	310.1	493.2
Franklin/Grand Isle	142.4	192.3	334.7
Lamoille	76.3	232.2	308.5
Orange	237.7	334.4	572.1
Orleans	208.8	176.0	384.8
Rutland	156.4	441.9	598.3
Washington	208.8	376.9	585.7
Windham	261.7	494.0	755.7
Windsor	146.9	432.6	579.5
All counties	2,004.5	4,270.9	6,275.4

Table 1.--Continued

County	Species group		All species
	Softwoods	Hardwoods	
	ABOVEGROUND TREE BIOMASS[c]		
	Thousand green tons		
Addison	4,613.0	21,060.3	25,673.3
Bennington	2,847.8	32,736.1	35,583.9
Caledonia	12,334.7	15,861.0	28,195.7
Chittenden	2,307.1	15,335.8	17,642.9
Essex	9,920.3	22,806.8	32,727.1
Franklin/Grand Isle	8,166.7	13,959.2	22,125.9
Lamoille	4,778.0	19,064.1	23,842.1
Orange	13,604.1	22,234.2	35,838.3
Orleans	12,075.2	14,338.3	26,413.5
Rutland	9,311.7	30,685.6	39,997.3
Washington	11,325.9	24,547.7	35,873.6
Windham	14,244.5	28,789.9	43,034.4
Windsor	13,067.3	33,479.9	46,547.2
All counties	118,596.3	294,898.9	413,495.2

[a]Net volume in board feet, by International 1/4-inch rule, of live trees of commercial species at least 9.0 inches d.b.h. (diameter breast height) for softwoods or 11.0 inches d.b.h. for hardwoods, between a 1-foot stump height and a minimum sawlog top of 7.0 inches d.o.b. (diameter outside bark) for softwoods or 9.0 inches d.o.b. for hardwoods, or until the point on the main stem above which a sawlog cannot be produced.

[b]Net volume, in cubic feet, of live trees of commercial species at least 5.0 inches d.b.h. between a 1-foot stump height and a minimum top of 4.0 inches d.o.b., or to the point where the main stem breaks into limbs.

[c]Net biomass, in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch d.b.h., above the ground level (excluding foliage).

Table 2.--Area of timberland, net aboveground tree biomass of all trees on timberland, and net aboveground tree biomass per acre of timberland, by county, Vermont, 1983

County	Timberland area	Total aboveground tree biomass[a]	Total aboveground tree biomass per unit area
	Thousand acres	Thousand green tons	Green tons per acre
Addison	285.6	25,673.3	89.9
Bennington	354.8	35,583.9	100.3
Caledonia	292.3	28,195.7	96.5
Chittenden	214.9	17,642.9	82.1
Essex	393.7	32,727.1	83.1
Franklin/Grand Isle	278.1	22,125.9	79.6
Lamoille	235.5	23,842.1	101.2
Orange	341.9	35,838.3	104.8
Orleans	305.1	26,413.5	86.6
Rutland	444.7	39,997.3	89.9
Washington	353.8	35,873.6	101.4
Windham	421.0	43,034.4	102.2
Windsor	500.7	46,547.2	93.0
All counties	4,422.1	413,495.2	93.5

[a]Net biomass, in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch d.b.h. above the ground level (excluding foliage).

Table 3.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	38,783.3	65,388.5	104,171.8	3
Upper stem	5,156.8	15,953.6	21,110.4	3
Total	43,940.1	81,342.1	125,282.2	3
Poletimber trees	18,545.2	65,962.0	84,507.2	3
All growing stock	62,485.3	147,304.1	209,789.4	2
Rough cull trees[b]	10,169.5	22,384.7	32,554.2	5
Rotten cull trees[b]	1,330.4	19,126.5	20,456.9	5
Salvable dead trees[c]	2,749.3	3,512.4	6,261.7	9
Saplings[d]	13,242.9	29,189.0	42,431.9	6
Stumps[e]	1,553.0	4,671.3	6,224.3	2
Tops - growing stock	22,986.0	54,800.4	77,786.4	2
Tops - rough and rotten	4,079.9	13,910.5	17,990.4	3
All nongrowing stock	56,111.0	147,594.8	203,705.8	2
All classes	118,596.3	294,898.9	413,495.2	1.5
Sampling error (percent)	5	2	1.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 4.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Addison County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	1,445.3*	4,746.3	6,191.6	10
Upper stem	186.5*	1,183.9	1,370.4	10
Total	1,631.8*	5,930.2	7,562.0	10
Poletimber trees	996.4*	5,388.7	6,385.1	11
All growing stock	2,628.2*	11,318.9	13,947.1	8
Rough cull trees[b]	92.9*	943.3	1,036.2	19
Rotten cull trees[b]	33.2**	721.2	754.4	20
Salvable dead trees[c]	42.7**	228.7*	271.4	33
Saplings[d]	714.3**	2,726.1	3,440.4	20
Stumps[e]	58.4*	331.1	389.5	7
Tops - growing stock	991.2*	4,272.1	5,263.3	8
Tops - rough and rotten	52.1**	518.9	571.0	14
All nongrowing stock	1,984.8*	9,741.4	11,726.2	9
All classes	4,613.0	21,060.3	25,673.3	6.9
Sampling error (percent)	27	8	6.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 5.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Bennington County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	1,079.6*	9,287.6	10,367.2	8
Upper stem	124.9	2,192.7	2,317.6	8
Total	1,204.5*	11,480.3	12,684.8	8
Poletimber trees	315.6	5,671.1	5,986.7	10
All growing stock	1,520.1	17,151.4	18,671.5	6
Rough cull trees[b]	215.8*	2,131.2	2,347.0	16
Rotten cull trees[b]	46.9**	1,581.1	1,628.0	17
Salvable dead trees[c]	3.7**	178.4*	182.1	38
Saplings[d]	377.0*	3,840.3	4,217.3	16
Stumps[e]	36.3	521.9	558.2	5
Tops - growing stock	534.2	6,144.1	6,678.3	6
Tops - rough and rotten	113.8*	1,187.7	1,301.5	12
All nongrowing stock	1,327.7	15,584.7	16,912.4	5
All classes	2,847.8	32,736.1	35,583.9	4.2
Sampling error (percent)	20	5	4.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 6.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Caledonia County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,724.0	3,668.1	7,392.1	11
Upper stem	511.6	845.2	1,356.8	11
Total	4,235.6	4,513.3	8,748.9	11
Poletimber trees	2,365.2	4,047.1	6,412.3	11
All growing stock	6,600.8	8,560.4	15,161.2	8
Rough cull trees[b]	241.0*	943.1	1,184.1	18
Rotten cull trees[b]	62.9**	446.8*	509.7	26
Salvable dead trees[c]	511.7*	611.2*	1,122.9	23
Saplings[d]	2,145.1*	1,424.7*	3,569.8	20
Stumps[e]	148.0	232.7	380.7	7
Tops - growing stock	2,509.3	3,203.9	5,713.2	8
Tops - rough and rotten	115.9*	438.2	554.1	15
All nongrowing stock	5,733.9	7,300.6	13,034.5	8
All classes	12,334.7	15,861.0	28,195.7	6.5
Sampling error (percent)	15	13	6.5	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c] Includes entire tree above a 1-foot stump height.

[d] Includes entire tree above the ground.

[e] Of all trees 5.0 inches d.b.h. and larger.

Table 7.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Chittenden County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	831.1*	3,389.9	4,221.0	10
Upper stem	116.6*	773.7	890.3	10
Total	947.7*	4,163.6	5,111.3	10
Poletimber trees	331.0*	3,170.1	3,501.1	11
All growing stock	1,278.7*	7,333.7	8,612.4	8
Rough cull trees[b]	284.5*	1,099.4	1,383.9	14
Rotten cull trees[b]	15.2**	801.1	816.3	21
Salvable dead trees[c]	2.7**	101.1*	103.8	43
Saplings[d]	99.9**	2,433.3*	2,533.2	31
Stumps[e]	34.9*	233.5	268.4	7
Tops - growing stock	473.0*	2,694.1	3,167.1	8
Tops - rough and rotten	118.2*	639.6	757.8	10
All nongrowing stock	1,028.4*	8,002.1	9,030.5	10
All classes	2,307.1	15,335.8	17,642.9	7.3
Sampling error (percent)	33	9	7.3	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c] Includes entire tree above a 1-foot stump height.

[d] Includes entire tree above the ground.

[e] Of all trees 5.0 inches d.b.h. and larger.

Table 8.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Essex County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	2,594.1	4,586.6	7,180.7	10
Upper stem	388.8	1,123.8	1,512.6	10
Total	2,982.9	5,710.4	8,693.3	10
Poletimber trees	2,080.3	4,989.3	7,069.6	7
All growing stock	5,063.2	10,699.7	15,762.9	6
Rough cull trees[b]	470.4*	1,884.4	2,354.8	16
Rotten cull trees[b]	190.2*	1,642.7	1,832.9	13
Salvable dead trees[c]	324.5*	173.9*	498.4	22
Saplings[d]	1,474.1*	2,864.3	4,338.4	16
Stumps[e]	133.8	354.3	488.1	5
Tops - growing stock	1,993.0	3,921.8	5,914.8	6
Tops - rough and rotten	271.1	1,265.7	1,536.8	10
All nongrowing stock	4,857.1	12,107.1	16,964.2	6
All classes	9,920.3	22,806.8	32,727.1	4.8
Sampling error (percent)	17	8	4.8	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c] Includes entire tree above a 1-foot stump height.

[d] Includes entire tree above the ground.

[e] Of all trees 5.0 inches d.b.h. and larger.

Table 9.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Franklin/Grand Isle Counties, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,226.4	2,979.9	6,206.3	14
Upper stem	413.0	728.9	1,141.9	14
Total	3,639.4	3,708.8	7,348.2	14
Poletimber trees	979.7	2,897.0	3,876.7	11
All growing stock	4,619.1	6,605.8	11,224.9	9
Rough cull trees[b]	644.6*	1,222.3	1,866.9	21
Rotten cull trees[b]	32.6*	1,069.9	1,102.5	23
Salvable dead trees[c]	222.4*	325.0**	547.4	41
Saplings[d]	673.8*	1,262.8*	1,936.6	23
Stumps[e]	116.6	221.3	337.9	8
Tops - growing stock	1,631.7	2,499.1	4,130.8	8
Tops - rough and rotten	225.9*	753.0	978.9	16
All nongrowing stock	3,547.6	7,353.4	10,901.0	9
All classes	8,166.7	13,959.2	22,125.9	7.5
Sampling error (percent)	20	10	7.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 10.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Lamoille County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	1,353.5*	3,562.9	4,916.4	12
Upper stem	193.0*	885.6	1,078.6	11
Total	1,546.5*	4,448.5	5,995.0	12
Poletimber trees	829.6*	3,875.0	4,704.6	10
All growing stock	2,376.1*	8,323.5	10,699.6	7
Rough cull trees[b]	509.9*	1,907.9	2,417.8	11
Rotten cull trees[b]	47.7**	1,765.2	1,812.9	19
Salvable dead trees[c]	125.1*	184.3*	309.4	30
Saplings[d]	512.0**	2,214.3	2,726.3	24
Stumps[e]	73.4*	300.9	374.3	5
Tops - growing stock	907.5*	3,094.3	4,001.8	7
Tops - rough and rotten	226.3*	1,273.7	1,500.0	9
All nongrowing stock	2,401.9*	10,740.6	13,142.5	7
All classes	4,778.0	19,064.1	23,842.1	5.7
Sampling error (percent)	25	7	5.7	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 11.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Orange County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	4,998.5	5,346.1	10,344.6	10
Upper stem	652.2	1,329.5	1,981.7	9
Total	5,650.7	6,675.6	12,326.3	10
Poletimber trees	1,963.8	4,629.8	6,593.6	9
All growing stock	7,614.5	11,305.4	18,919.9	7
Rough cull trees[b]	908.4*	1,537.9	2,446.3	17
Rotten cull trees[b]	50.7**	1,894.8	1,945.5	22
Salvable dead trees[c]	140.0*	367.0*	507.0	25
Saplings[d]	1,636.0*	1,573.6*	3,209.6	19
Stumps[e]	168.3	329.9	498.2	6
Tops - growing stock	2,757.3	4,189.8	6,947.1	7
Tops - rough and rotten	328.9	1,035.8	1,364.7	12
All nongrowing stock	5,989.6	10,928.8	16,918.4	7
All classes	13,604.1	22,234.2	35,838.3	6.0
Sampling error (percent)	13	9	6.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 12.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Orleans County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	2,969.0	2,120.2	5,089.2	12
Upper stem	438.5	562.4	1,000.9	12
Total	3,407.5	2,682.6	6,090.1	12
Poletimber trees	2,255.2	3,571.4	5,826.6	9
All growing stock	5,662.7	6,254.0	11,916.7	8
Rough cull trees[b]	908.9	1,855.8	2,764.7	14
Rotten cull trees[b]	181.8*	1,221.3	1,403.1	20
Salvable dead trees[c]	567.9*	241.4*	809.3	29
Saplings[d]	1,946.2*	1,007.8*	2,954.0	24
Stumps[e]	169.4	232.7	402.1	7
Tops - growing stock	2,193.5	2,405.5	4,599.0	8
Tops - rough and rotten	444.8	1,119.8	1,564.6	12
All nongrowing stock	6,412.5	8,084.3	14,496.8	8
All classes	12,075.2	14,338.3	26,413.5	6.3
Sampling error (percent)	15	13	6.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 13.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Rutland County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,636.7	7,232.4	10,869.1	9
Upper stem	450.0	1,714.7	2,164.7	8
Total	4,086.7	8,947.1	13,033.8	8
Poletimber trees	1,359.4	6,677.2	8,036.6	9
All growing stock	5,446.1	15,624.3	21,070.4	6
Rough cull trees[b]	564.5*	2,783.0	3,347.5	14
Rotten cull trees[b]	137.0**	1,286.7	1,423.7	15
Salvable dead trees[c]	59.2*	202.5*	261.7	28
Saplings[d]	847.4*	3,173.9	4,021.3	16
Stumps[e]	120.7	494.3	615.0	5
Tops - growing stock	1,912.7	5,906.1	7,818.8	5
Tops - rough and rotten	224.1	1,214.8	1,438.9	10
All nongrowing stock	3,865.6	15,061.3	18,926.9	5
All classes	9,311.7	30,685.6	39,997.3	4.6
Sampling error (percent)	15	7	4.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 14.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Washington County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,554.2	4,842.6	8,396.8	9
Upper stem	526.9	1,223.5	1,750.4	8
Total	4,081.1	6,066.1	10,147.2	9
Poletimber trees	2,032.4	6,940.7	8,973.1	8
All growing stock	6,113.5	13,006.8	19,120.3	6
Rough cull trees[b]	343.7*	1,425.0	1,768.7	14
Rotten cull trees[b]	66.9*	961.0	1,027.9	22
Salvable dead trees[c]	515.6*	688.6*	1,204.2	20
Saplings[d]	1,645.2*	2,333.5	3,978.7	16
Stumps[e]	135.0	348.9	483.9	4
Tops - growing stock	2,334.1	4,982.1	7,316.2	6
Tops - rough and rotten	171.9*	801.8	973.7	11
All nongrowing stock	5,212.4	11,540.9	16,753.3	5
All classes	11,325.9	24,547.7	35,873.6	4.8
Sampling error (percent)	18	7	4.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 15.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Windham County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	6,183.0	7,443.6	13,626.6	8
Upper stem	732.0	1,830.2	2,562.2	7
Total	6,915.0	9,273.8	16,188.8	7
Poletimber trees	1,997.1	7,317.1	9,314.2	8
All growing stock	8,912.1	16,590.9	25,503.0	6
Rough cull trees[b]	1,010.0*	1,397.1	2,407.1	20
Rotten cull trees[b]	141.0*	1,563.8	1,704.8	19
Salvable dead trees[c]	168.6*	112.6*	281.2	22
Saplings[d]	444.4*	1,621.8*	2,066.2	24
Stumps[e]	186.2	473.9	660.1	5
Tops - growing stock	3,074.7	6,093.9	9,168.6	6
Tops - rough and rotten	307.5*	935.9	1,243.4	13
All nongrowing stock	5,332.4	12,199.0	17,531.4	5
All classes	14,244.5	28,789.9	43,034.4	4.6
Sampling error (percent)	13	6	4.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 16.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Windsor County, Vermont, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,187.9	6,182.3	9,370.2	9
Upper stem	422.8	1,559.5	1,982.3	8
Total	3,610.7	7,741.8	11,352.5	8
Poletimber trees	1,039.5	6,787.5	7,827.0	9
All growing stock	4,650.2	14,529.3	19,179.5	6
Rough cull trees[b]	3,974.9	3,254.3	7,229.2	12
Rotten cull trees[b]	324.3*	4,170.9	4,495.2	9
Salvable dead trees[c]	65.2**	97.7*	162.9	32
Saplings[d]	727.5*	2,712.6	3,440.1	20
Stumps[e]	172.0	595.9	767.9	4
Tops - growing stock	1,673.8	5,393.6	7,067.4	6
Tops - rough and rotten	1,479.4	2,725.6	4,205.0	8
All nongrowing stock	8,417.1	18,950.6	27,367.7	5
All classes	13,067.3	33,479.9	46,547.2	4.0
Sampling error (percent)	15	6	4.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

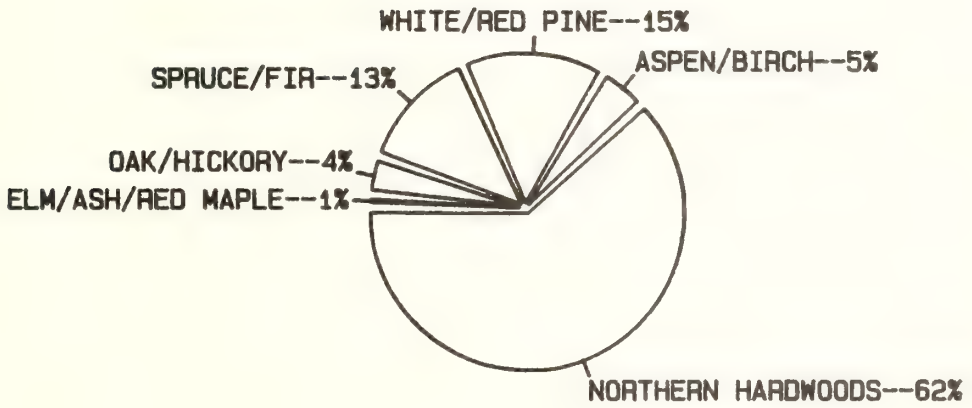
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

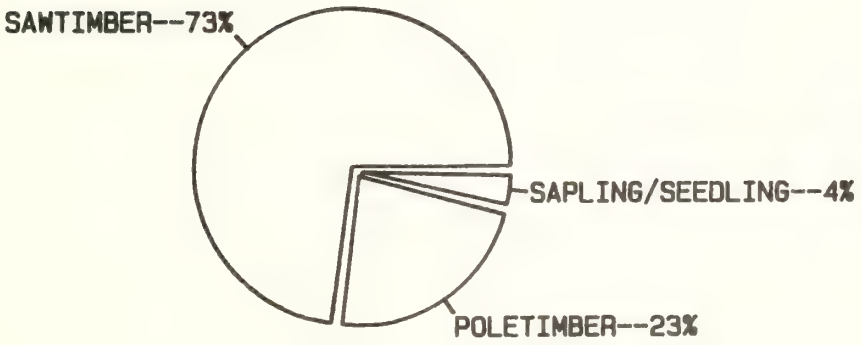
[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

ABOVEGROUND BIOMASS
of ALL LIVE TREES



FOREST-TYPE GROUP



STANDSIZE CLASS

Table 17.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	54,733.7	5,659.3*	1,473.9*	.0	61,866.9	11
Spruce/fir	36,611.2	12,600.0	4,450.0*	.0	53,661.2	10
Oak/pine	595.1**	507.3**	.0	.0	1,102.4	71
Oak/hickory	9,176.6*	3,641.4*	1,207.8**	56.0**	14,081.8	24
Elm/ash/red maple	2,632.5*	1,268.5**	474.0**	.0	4,375.0	33
Northern hardwoods	187,855.1	57,983.5	7,234.1	.0	253,072.7	4
Aspen/birch	5,435.1*	13,030.6	471.8**	.0	18,937.5	21
Total, all groups	297,039.3	94,690.6	15,311.6	56.0	407,097.5	1.5
Sampling error (percent)	3	8	14	100	1.5	
	Thousand acres					Percent
White/red pine	522.0	65.3*	44.0*	.0	631.3	10
Spruce/fir	358.4	153.5	121.7	.0	633.6	9
Oak/pine	6.7**	6.8**	.0	.0	13.5	71
Oak/hickory	80.7*	45.4*	31.9*	6.4**	164.4	20
Elm/ash/red maple	43.6*	28.3*	27.1*	.0	99.0	26
Northern hardwoods	1,832.3	624.6	235.0	5.6**	2,697.5	3
Aspen/birch	44.1*	124.6	14.1**	.0	182.8	20
Total, all groups	2,887.8	1,048.5	473.8	12.0	4,422.1	.7
Sampling error (percent)	3	7	10	71	.7	
	Green tons per acre[b]					
White/red pine	104.9	86.7	33.5	.0	98.0	
Spruce/fir	102.2	82.1	36.6	.0	84.7	
Oak/pine	88.8	74.6	.0	.0	81.7	
Oak/hickory	113.7	80.2	37.9	8.8	85.7	
Elm/ash/red maple	60.4	44.8	17.5	.0	44.2	
Northern hardwoods	102.5	92.8	30.8	.0	93.8	
Aspen/birch	123.2	104.6	33.5	.0	103.6	
All groups	102.9	90.3	32.3	4.7	92.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size clas

Table 18.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Addison County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	2,429.7**	538.5**	.0	.0	2,968.2	50
pruce/fir	.0	909.6**	.0	.0	909.6	100
ak/pine	.0	.0	.0	.0	.0	-
ak/hickory	1,585.0**	.0	81.4**	.0	1,666.4	69
lm/ash/red maple	882.6**	.0	.0	.0	882.6	100
orthern hardwoods	12,421.9	4,102.5	447.2**	.0	16,971.6	14
spen/birch	1,304.7**	691.2**	.0	.0	1,995.9	74
Total, all groups	18,623.9	6,241.8	528.6	.0	25,394.3	7.0
Sampling error (percent)	14	30	67	-	7.0	
	Thousand acres					Percent
hite/red pine	22.9**	7.8**	.0	.0	30.7	49
pruce/fir	.0	7.7**	.0	.0	7.7	100
ak/pine	.0	.0	.0	.0	.0	-
ak/hickory	16.2**	.0	11.6**	.0	27.8	51
lm/ash/red maple	8.5**	.0	.0	.0	8.5	100
orthern hardwoods	124.1	51.3*	13.7**	5.6**	194.7	12
spen/birch	7.7**	8.5**	.0	.0	16.2	71
Total, all groups	179.4	75.3	25.3	5.6	285.6	2.2
Sampling error (percent)	12	27	48	100	2.2	
	Green tons per acre[b]					
nite/red pine	106.1	69.0	.0	.0	96.7	
pruce/fir	.0	118.1	.0	.0	118.1	
ak/pine	.0	.0	.0	.0	.0	
ak/hickory	97.8	.0	7.0	.0	59.9	
lm/ash/red maple	103.8	.0	.0	.0	103.8	
orthern hardwoods	100.1	80.0	32.6	.0	87.2	
spen/birch	169.4	81.3	.0	.0	123.2	
All groups	103.8	82.9	20.9	.0	88.9	

Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 19.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Bennington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	357.7**	.0	357.7	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	1,627.9**	.0	347.4**	.0	1,975.3	61
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	25,633.1	6,228.9*	1,201.3**	.0	33,063.3	6
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	27,261.0	6,228.9	1,906.4	.0	35,396.3	4.1
Sampling error (percent)	9	34	39	-	4.1	
	Thousand acres					Percent
White/red pine	.0	.0	6.5**	.0	6.5	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	14.2**	.0	6.4**	.0	20.6	58
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	251.2	56.6*	19.9**	.0	327.7	4
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	265.4	56.6	32.8	.0	354.8	1.1
Sampling error (percent)	8	33	38	-	1.8	
	Green tons per acre[b]					
White/red pine	.0	.0	55.0	.0	55.0	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	114.6	.0	54.3	.0	95.9	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	102.0	110.1	60.4	.0	100.9	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	102.7	110.1	58.1	.0	99.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size cla

Table 20.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Caledonia County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
ite/red pine	4,544.0*	1,043.9**	.0	.0	5,587.9	37
ruce/fir	4,300.2*	2,274.5**	442.7**	.0	7,017.4	28
k/pine	.0	.0	.0	.0	.0	-
k/hickory	.0	.0	.0	.0	.0	-
m/ash/red maple	.0	.0	.0	.0	.0	-
rthern hardwoods	7,945.1	5,023.6*	236.4**	.0	13,205.1	19
pen/birch	.0	899.3**	343.2**	.0	1,242.5	77
Total, all groups	16,789.3	9,241.3	1,022.3	.0	27,052.9	6.5
Sampling error (percent)	16	25	54	-	6.5	
	Thousand acres					Percent
ite/red pine	44.2*	7.3**	.0	.0	51.5	35
ruce/fir	44.1*	28.2*	14.6**	.0	86.9	24
k/pine	.0	.0	.0	.0	.0	-
k/hickory	.0	.0	.0	.0	.0	-
m/ash/red maple	.0	.0	.0	.0	.0	-
rthern hardwoods	66.8*	52.0*	20.2**	.0	139.0	17
pen/birch	.0	7.6**	7.3**	.0	14.9	71
Total, all groups	155.1	95.1	42.1	.0	292.3	3.8
Sampling error (percent)	15	24	39	-	3.8	
	Green tons per acre[b]					
ite/red pine	102.8	143.0	.0	.0	108.5	
ruce/fir	97.5	80.7	30.3	.0	80.8	
k/pine	.0	.0	.0	.0	.0	
k/hickory	.0	.0	.0	.0	.0	
m/ash/red maple	.0	.0	.0	.0	.0	
rthern hardwoods	118.9	96.6	11.7	.0	95.0	
pen/birch	.0	118.3	47.0	.0	83.4	
All groups	108.2	97.2	24.3	.0	92.6	

ampling errors are expressed as a percent of the total and are included only for row and column tals. A single asterisk (*) by a cell value indicates that the estimate has an associated mpling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has associated sampling error greater than 50 percent, and therefore is not significantly different om zero.

er acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 21.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Chittenden County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampli erro
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Perce
White/red pine	1,961.0**	.0	156.4**	.0	2,117.4	5
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	442.1**	56.0**	498.1	9
Elm/ash/red maple	578.1**	.0	.0	.0	578.1	7
Northern hardwoods	10,139.7	1,022.9**	1,516.9*	.0	12,679.5	1
Aspen/birch	.0	1,661.5**	.0	.0	1,661.5	6
Total, all groups	12,678.8	2,684.4	2,115.4	56.0	17,534.6	7
Sampling error (percent)	12	57	27	100	7.3	
	Thousand acres					Perce
White/red pine	20.7**	.0	7.2**	.0	27.9	4
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	7.3**	6.4**	13.7	7
Elm/ash/red maple	13.5**	.0	.0	.0	13.5	6
Northern hardwoods	91.1	7.0**	48.2*	.0	146.3	1
Aspen/birch	.0	13.5**	.0	.0	13.5	6
Total, all groups	125.3	20.5	62.7	6.4	214.9	3
Sampling error (percent)	12	56	20	100	3.8	
	Green tons per acre[b]					
White/red pine	94.7	.0	21.7	.0	75.9	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	60.6	8.8	36.4	
Elm/ash/red maple	42.8	.0	.0	.0	42.8	
Northern hardwoods	111.3	146.1	31.5	.0	86.7	
Aspen/birch	.0	123.1	.0	.0	123.1	
All groups	101.2	130.9	33.7	8.8	81.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size cla

Table 22.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Essex County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
te/red pine	.0	.0	.0	.0	.0	-
uce/fir	5,406.4*	4,125.4*	980.7**	.0	10,512.5	24
/pine	.0	.0	.0	.0	.0	-
/hickory	.0	.0	.0	.0	.0	-
/ash/red maple	164.6**	.0	.0	.0	164.6	100
thern hardwoods	10,836.5	9,137.0	1,568.8*	.0	21,542.3	11
en/birch	.0	.0	.0	.0	.0	-
Total, all groups	16,407.5	13,262.4	2,549.5	.0	32,219.4	4.7
Sampling error (percent)	17	17	35	-	4.7	
	Thousand acres					Percent
te/red pine	.0	.0	.0	.0	.0	-
uce/fir	44.2*	51.5*	20.0**	.0	115.7	22
/pine	.0	.0	.0	.0	.0	-
/hickory	.0	.0	.0	.0	.0	-
/ash/red maple	7.4**	.0	.0	.0	7.4	100
thern hardwoods	110.5	110.6	49.5**	.0	270.6	10
en/birch	.0	.0	.0	.0	.0	-
Total, all groups	162.1	162.1	69.5	.0	393.7	2.0
Sampling error (percent)	16	16	25	-	2.0	
	Green tons per acre[b]					
te/red pine	.0	.0	.0	.0	.0	
uce/fir	122.3	80.1	49.0	.0	90.9	
/pine	.0	.0	.0	.0	.0	
/hickory	.0	.0	.0	.0	.0	
/ash/red maple	22.2	.0	.0	.0	22.2	
thern hardwoods	98.1	82.6	31.7	.0	79.6	
en/birch	.0	.0	.0	.0	.0	
ll groups	101.2	81.8	36.7	.0	81.8	

mpling errors are expressed as a percent of the total and are included only for row and column als. A single asterisk (*) by a cell value indicates that the estimate has an associated pling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has associated sampling error greater than 50 percent, and therefore is not significantly different m zero.

r acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 23.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Franklin/Grand Isle Counties, Vermont, 1983

Forest-type group	Stand-size class				All classes	Samplir error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percer
White/red pine	6,905.2*	.0	.0	.0	6,905.2	31
Spruce/fir	1,157.8**	616.2	152.3**	.0	1,926.3	61
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	9.2**	.0	.0	9.2	100
Elm/ash/red maple	.0	850.7**	72.6**	.0	923.3	60
Northern hardwoods	9,315.4	2,251.9*	236.7**	.0	11,804.0	18
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	17,378.4	3,728.0	461.6	.0	21,568.0	7.9
Sampling error (percent)	13	30	49	-	7.5	
	Thousand acres					Percer
White/red pine	67.7*	.0	.0	.0	67.7	29
Spruce/fir	7.3**	6.0	6.9**	.0	20.2	50
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	2.9**	.0	.0	2.9	100
Elm/ash/red maple	.0	21.3**	13.8**	.0	35.1	42
Northern hardwoods	100.2	38.2*	13.8**	.0	152.2	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	175.2	68.4	34.5	.0	278.1	3.4
Sampling error (percent)	12	29	28	-	3.4	
	Green tons per acre[b]					
White/red pine	102.0	.0	.0	.0	102.0	
Spruce/fir	158.6	102.7	22.1	.0	95.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	3.2	.0	.0	3.2	
Elm/ash/red maple	.0	39.9	5.3	.0	26.3	
Northern hardwoods	93.0	59.0	17.2	.0	77.6	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	99.2	54.5	13.4	.0	77.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly differen from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size cla

Table 24.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Lamoille County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
ıite/red pine	898.9**	.0	.0	.0	898.9	100
›ruce/fir	1,673.5**	.0	293.3**	.0	1,966.8	67
ık/pine	.0	.0	.0	.0	.0	-
ık/hickory	.0	.0	.0	.0	.0	-
.m/ash/red maple	.0	.0	.0	.0	.0	-
›rthern hardwoods	13,605.5	7,040.5	14.2**	.0	20,660.2	9
ıpen/birch	.0	.0	.0	.0	.0	-
Total, all groups	16,177.9	7,040.5	307.5	.0	23,525.9	5.7
Sampling error (percent)	13	29	58	-	5.7	
	Thousand acres					Percent
ıite/red pine	7.2**	.0	.0	.0	7.2	100
›ruce/fir	14.6**	.0	15.8**	.0	30.4	43
ık/pine	.0	.0	.0	.0	.0	-
ık/hickory	.0	.0	.0	.0	.0	-
m/ash/red maple	.0	.0	.0	.0	.0	-
›rthern hardwoods	124.7	65.3*	7.9**	.0	197.9	8
pen/birch	.0	.0	.0	.0	.0	-
Total, all groups	146.5	65.3	23.7	.0	235.5	1.7
Sampling error (percent)	12	27	12	-	1.7	
	Green tons per acre[b]					
ıite/red pine	124.8	.0	.0	.0	124.8	
›ruce/fir	114.6	.0	18.6	.0	64.7	
ık/pine	.0	.0	.0	.0	.0	
ık/hickory	.0	.0	.0	.0	.0	
.m/ash/red maple	.0	.0	.0	.0	.0	
›rthern hardwoods	109.1	107.8	1.8	.0	104.4	
ıpen/birch	.0	.0	.0	.0	.0	
All groups	110.4	107.8	13.0	.0	99.9	

ampling errors are expressed as a percent of the total and are included only for row and column ›tals. A single asterisk (*) by a cell value indicates that the estimate has an associated ımpling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has ı associated sampling error greater than 50 percent, and therefore is not significantly different ›om zero.

'er acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 25.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Orange County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	6,968.7*	.0	338.7**	.0	7,307.4	32
Spruce/fir	3,891.3*	725.9**	298.7**	.0	4,915.9	28
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	1,768.0**	.0	.0	.0	1,768.0	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	15,810.9	3,948.8*	65.8**	.0	19,825.5	15
Aspen/birch	593.6**	911.3**	.0	.0	1,504.9	71
Total, all groups	29,032.5	5,586.0	703.2	.0	35,321.7	6.1
Sampling error (percent)	10	36	62	-	6.1	
	Thousand acres					Percent
White/red pine	67.2*	.0	12.7**	.0	79.9	27
Spruce/fir	44.3*	7.7**	7.8**	.0	59.8	25
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	7.5**	.0	.0	.0	7.5	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	135.0	37.8*	6.8**	.0	179.6	13
Aspen/birch	7.5**	7.6**	.0	.0	15.1	69
Total, all groups	261.5	53.1	27.3	.0	341.9	4.0
Sampling error (percent)	9	35	50	-	4.0	
	Green tons per acre[b]					
White/red pine	103.7	.0	26.7	.0	91.5	
Spruce/fir	87.8	94.3	38.3	.0	82.2	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	235.7	.0	.0	.0	235.7	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	117.1	104.5	9.7	.0	110.4	
Aspen/birch	79.1	119.9	.0	.0	99.7	
All groups	111.0	105.2	25.8	.0	103.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size clas

Table 26.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Orleans County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	.0	254.8**	.0	.0	254.8	100
pruce/fir	8,687.2*	2,077.1**	1,517.7**	.0	12,282.0	18
ak/pine	.0	.0	.0	.0	.0	-
ak/hickory	.0	.0	.0	.0	.0	-
lm/ash/red maple	.0	.0	.0	.0	.0	-
orthern hardwoods	6,088.6*	4,863.8*	.0	.0	10,952.4	20
spen/birch	.0	2,100.9**	.0	.0	2,100.9	57
Total, all groups	14,775.8	9,296.6	1,517.7	.0	25,590.1	6.2
Sampling error (percent)	17	23	61	-	6.2	
	Thousand acres					Percent
hite/red pine	.0	7.4**	.0	.0	7.4	100
pruce/fir	96.3	30.4*	30.0*	.0	156.7	16
ak/pine	.0	.0	.0	.0	.0	-
ak/hickory	.0	.0	.0	.0	.0	-
lm/ash/red maple	.0	.0	.0	.0	.0	-
orthern hardwoods	67.9*	50.7*	.0	.0	118.6	19
spen/birch	.0	22.4**	.0	.0	22.4	56
Total, all groups	164.2	110.9	30.0	.0	305.1	3.9
Sampling error (percent)	15	22	49	-	3.9	
	Green tons per acre[b]					
hite/red pine	.0	34.4	.0	.0	34.4	
pruce/fir	90.2	68.3	50.6	.0	78.4	
ak/pine	.0	.0	.0	.0	.0	
ak/hickory	.0	.0	.0	.0	.0	
lm/ash/red maple	.0	.0	.0	.0	.0	
orthern hardwoods	89.7	95.9	.0	.0	92.3	
spen/birch	.0	93.8	.0	.0	93.8	
All groups	90.0	83.8	50.6	.0	83.9	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 27.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Rutland County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Samplin error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percen
White/red pine	7,349.4*	2,257.7**	.0	.0	9,607.1	23
Spruce/fir	1,136.0**	.0	536.7**	.0	1,672.7	53
Oak/pine	595.1**	.0	.0	.0	595.1	100
Oak/hickory	.0	2,665.6*	336.9**	.0	3,002.5	45
Elm/ash/red maple	.0	417.8**	258.2**	.0	676.0	73
Northern hardwoods	19,713.5	3,559.7*	440.4**	.0	23,713.6	12
Aspen/birch	.0	459.0**	.0	.0	459.0	100
Total, all groups	28,794.0	9,359.8	1,572.2	.0	39,726.0	4.6
Sampling error (percent)	10	25	40	-	4.6	
	Thousand acres					Percer
White/red pine	84.0*	28.4*	.0	.0	112.4	21
Spruce/fir	14.3**	.0	19.1**	.0	33.4	44
Oak/pine	6.7**	.0	.0	.0	6.7	100
Oak/hickory	.0	27.6*	6.7**	.0	34.3	43
Elm/ash/red maple	.0	7.0**	6.7**	.0	13.7	71
Northern hardwoods	184.5	33.5*	19.1*	.0	237.1	11
Aspen/birch	.0	7.1 **	.0	.0	7.1	100
Total, all groups	289.5	103.6	51.6	.0	444.7	1.
Sampling error (percent)	9	23	31	-	1.3	
	Green tons per acre[b]					
White/red pine	87.5	79.5	.0	.0	85.5	
Spruce/fir	79.4	.0	28.1	.0	50.1	
Oak/pine	88.8	.0	.0	.0	88.8	
Oak/hickory	.0	96.6	50.3	.0	87.5	
Elm/ash/red maple	.0	59.7	38.5	.0	49.3	
Northern hardwoods	106.8	106.3	23.1	.0	100.0	
Aspen/birch	.0	64.6	.0	.0	64.6	
All groups	99.5	90.3	30.5	.0	89.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly differen from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size clas.

Table 28.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Washington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	3,250.5**	558.4**	.0	.0	3,808.9	51
Spruce/fir	5,806.7*	1,313.8**	.0	.0	7,120.5	35
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	663.1**	.0	.0	663.1	100
Elm/ash/red maple	665.3**	.0	143.2**	.0	808.5	84
Northern hardwoods	12,654.3	4,027.5*	735.6**	.0	17,417.4	14
Aspen/birch	727.3**	4,104.0*	.0	.0	4,831.3	40
Total, all groups	23,104.1	10,666.8	878.8	.0	34,649.7	4.9
Sampling error (percent)	12	22	52	-	4.9	
	Thousand acres					Percent
White/red pine	22.2**	7.4**	.0	.0	29.6	49
Spruce/fir	44.4*	14.9**	.0	.0	59.3	33
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	7.4**	.0	.0	7.4	100
Elm/ash/red maple	7.4**	.0	6.6**	.0	14.0	71
Northern hardwoods	133.0	44.5*	21.5**	.0	199.0	14
Aspen/birch	7.4**	37.1*	.0	.0	44.5	38
Total, all groups	214.4	111.3	28.1	.0	353.8	2.5
Sampling error (percent)	11	20	38	-	2.5	
	Green tons per acre[b]					
White/red pine	146.4	75.5	.0	.0	128.7	
Spruce/fir	130.8	88.2	.0	.0	120.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	89.6	.0	.0	89.6	
Elm/ash/red maple	89.9	.0	21.7	.0	57.8	
Northern hardwoods	95.1	90.5	34.2	.0	87.5	
Aspen/birch	98.3	110.6	.0	.0	108.6	
All groups	107.8	95.8	31.3	.0	97.9	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 29.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Windham County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	10,510.8*	.0	.0	.0	10,510.8	28
Spruce/fir	1,970.9**	.0	227.9**	.0	2,198.8	53
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	3,512.4*	303.5**	.0	.0	3,815.9	44
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	20,684.2	2,660.4*	770.8**	.0	24,115.4	12
Aspen/birch	2,100.0**	.0	.0	.0	2,100.0	70
Total, all groups	38,778.3	2,963.9	998.7	.0	42,740.9	4.6
Sampling error (percent)	7	46	58	-	4.6	
	Thousand acres					Percent
White/red pine	85.0*	.0	.0	.0	85.0	26
Spruce/fir	21.4**	.0	7.5**	.0	28.9	49
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	35.8*	7.4**	.0	.0	43.2	40
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	206.6	28.6**	14.3**	.0	249.5	11
Aspen/birch	14.4**	.0	.0	.0	14.4	69
Total, all groups	363.2	36.0	21.8	.0	421.0	1.2
Sampling error (percent)	5	43	57	-	1.2	
	Green tons per acre[b]					
White/red pine	123.7	.0	.0	.0	123.7	
Spruce/fir	92.1	.0	30.4	.0	76.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	98.1	41.0	.0	.0	88.3	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	100.1	93.0	53.9	.0	96.7	
Aspen/birch	145.8	.0	.0	.0	145.8	
All groups	106.8	82.3	45.8	.0	101.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size clas

Table 30.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Windsor County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
hite/red pine	9,915.5*	1,006.0**	621.1**	.0	11,542.6	23
pruce/fir	2,581.2**	557.5**	.0	.0	3,138.7	45
ak/pine	.0	507.3**	.0	.0	507.3	100
ak/hickory	683.3**	.0	.0	.0	683.3	100
lm/ash/red maple	341.9**	.0	.0	.0	341.9	100
orthern hardwoods	23,006.4	4,116.0*	.0	.0	27,122.4	11
spen/birch	709.5**	2,203.4**	128.6**	.0	3,041.5	48
Total, all groups	37,237.8	8,390.2	749.7	.0	46,377.7	4.0
Sampling error (percent)	8	27	61	-	4.0	
	Thousand acres					Percent
hite/red pine	100.9*	7.0**	17.6**	.0	125.5	19
pruce/fir	27.6*	7.0**	.0	.0	34.6	44
ak/pine	.0	6.8**	.0	.0	6.8	100
ak/hickory	7.0**	.0	.0	.0	7.0	100
lm/ash/red maple	6.8**	.0	.0	.0	6.8	100
orthern hardwoods	236.7	48.6*	.0	.0	285.3	10
spen/birch	7.0**	20.9**	6.8**	.0	34.7	44
Total, all groups	386.0	90.3	24.4	.0	500.7	2.2
Sampling error (percent)	7	26	59	-	2.2	
	Green tons per acre[b]					
hite/red pine	98.3	143.7	35.3	.0	92.0	
pruce/fir	93.5	79.6	.0	.0	90.7	
ak/pine	.0	74.6	.0	.0	74.6	
ak/hickory	97.6	.0	.0	.0	97.6	
lm/ash/red maple	50.3	.0	.0	.0	50.3	
orthern hardwoods	97.2	84.7	.0	.0	95.1	
spen/birch	101.4	105.4	18.9	.0	87.7	
All groups	96.5	92.9	30.7	.0	92.6	

Sampling errors are expressed as a percent of the total and are included only for row and column otals. A single asterisk (*) by a cell value indicates that the estimate has an associated ampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has n associated sampling error greater than 50 percent, and therefore is not significantly different rom zero.

Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

MAJOR SPECIES BY WEIGHT
million tons

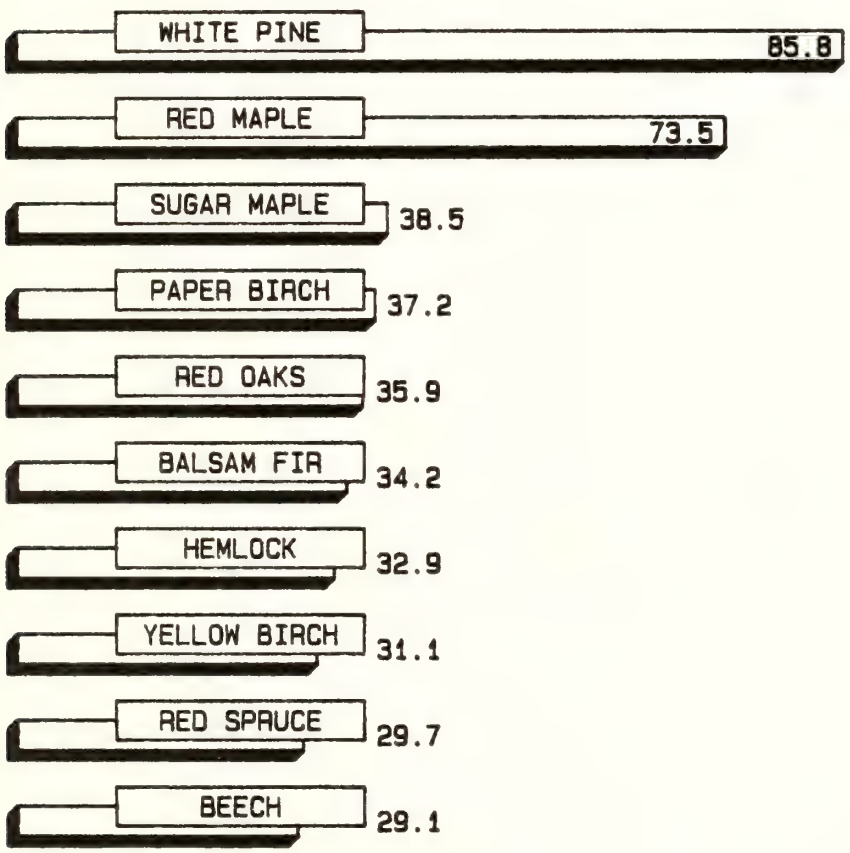


Table 31.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	231,542	54,000	4,350	0	289,892
Tamarack	0	1,290	187	0	1,477
White spruce	24,704	8,230	1,206	0	34,140
Black spruce	2,785	612	51	0	3,448
Red spruce	90,912	53,701	8,846	163	153,622
Red pine	0	654	412	17	1,083
White pine	35,645	33,640	12,801	1,106	83,192
Northern white-cedar	43,984	17,346	2,244	18	63,592
Hemlock	114,794	50,078	15,253	330	180,455
Other softwoods	1,426	686	0	0	2,112
Total softwoods	545,792	220,237	45,350	1,634	813,013
Sugar maple	294,380	116,986	36,774	3,177	451,317
Soft maples	129,364	66,702	16,159	523	212,748
Yellow birch	69,937	45,225	13,761	1,183	130,106
Paper birch	39,980	50,080	7,278	48	97,386
Gray birch	29,648	6,398	0	0	36,046
Beech	202,299	39,113	12,754	666	254,832
White ash	35,091	20,535	6,012	169	61,807
Black ash	5,452	1,918	330	0	7,700
Aspen	17,797	11,832	4,194	99	33,922
White oaks	4,236	1,622	489	72	6,419
Red oaks	6,910	7,732	4,817	350	19,809
Basswood	4,305	2,732	924	27	7,988
Elm	24,269	4,888	1,103	35	30,295
Other commercial hardwoods	47,078	23,501	4,508	132	75,219
Noncommercial hardwoods	230,334	27,603	623	0	258,560
Total hardwoods	1,141,080	426,867	109,726	6,481	1,684,154
Total, all species	1,686,872	647,104	155,076	8,115	2,497,167

Table 31.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	5,425.2	11,787.6	3,322.4	.0	20,535.2
Tamarack	.0	260.1	147.5	.0	407.6
White spruce	755.6	2,308.6	1,077.3	.0	4,141.5
Black spruce	111.7	195.0	38.2	.0	344.9
Red spruce	2,540.7	13,553.8	8,316.6	512.7	24,923.8
Red pine	.0	182.4	659.4	103.8	945.6
White pine	1,022.0	8,683.0	15,100.4	5,205.6	30,011.0
Northern white-cedar	739.1	2,392.2	935.4	18.6	4,085.3
Hemlock	2,602.7	12,118.2	14,472.6	1,071.6	30,265.1
Other softwoods	45.9	84.6	.0	.0	130.5
Total softwoods	13,242.9	51,565.5	44,069.8	6,912.3	115,790.5
Sugar maple	7,633.3	33,375.5	40,391.7	12,417.4	93,817.9
Soft maples	3,188.5	17,866.7	15,862.6	1,695.0	38,612.8
Yellow birch	2,154.0	13,507.1	14,911.1	3,976.5	34,548.7
Paper birch	1,172.3	15,994.1	8,748.0	192.6	26,107.0
Gray birch	1,124.6	1,102.1	.0	.0	2,226.7
Beech	5,426.2	11,467.9	14,512.2	2,262.6	33,668.9
White ash	1,048.9	5,571.6	6,143.8	658.8	13,423.1
Black ash	190.1	458.2	309.0	.0	957.3
Aspen	676.6	3,366.8	4,643.2	279.6	8,966.2
White oaks	30.6	570.4	577.1	341.6	1,519.7
Red oaks	303.1	2,395.4	5,527.0	2,230.4	10,455.9
Basswood	159.3	788.8	991.9	110.3	2,050.3
Elm	395.8	1,422.3	1,076.0	127.6	3,021.7
Other commercial hardwoods	1,281.1	5,920.4	4,432.6	452.5	12,086.6
Noncommercial hardwoods	4,404.6	4,784.6	655.0	.0	9,844.2
Total hardwoods	29,189.0	118,591.9	118,781.2	24,744.9	291,307.0
Total, all species	42,431.9	170,157.4	162,851.0	31,657.2	407,097.5

Table 32.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Addison County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	9,395	560	0	0	9,955
Tamarack	0	0	57	0	57
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,829	3,273	313	0	11,415
Red pine	0	0	0	0	0
White pine	2,425	2,903	429	18	5,775
Northern white-cedar	0	14	0	0	14
Hemlock	12,017	2,790	629	56	15,492
Other softwoods	0	107	0	0	107
Total softwoods	31,666	9,647	1,428	74	42,815
Sugar maple	16,564	5,879	2,210	84	24,737
Soft maples	9,395	4,701	699	18	14,813
Yellow birch	3,637	5,112	1,072	19	9,840
Paper birch	1,566	3,665	672	0	5,903
Gray birch	1,566	56	0	0	1,622
Beech	32,675	2,715	929	32	36,351
White ash	1,212	2,013	479	0	3,704
Black ash	0	0	0	0	0
Aspen	0	816	460	0	1,276
White oaks	0	0	71	12	83
Red oaks	0	642	509	34	1,185
Basswood	2,778	602	158	0	3,538
Elm	3,991	1,401	307	0	5,699
Other commercial hardwoods	6,414	1,264	359	0	8,037
Noncommercial hardwoods	33,713	3,725	0	0	37,438
Total hardwoods	113,511	32,591	7,925	199	154,226
Total, all species	145,177	42,238	9,353	273	197,041

Table 32.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	223.2	140.4	.0	.0	363.6
Tamarack	.0	.0	36.4	.0	36.4
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	328.2	760.7	226.1	.0	1,315.0
Red pine	.0	.0	.0	.0	.0
White pine	39.3	782.7	371.9	63.3	1,257.2
Northern white-cedar	.0	3.2	.0	.0	3.2
Hemlock	123.6	492.5	746.7	219.3	1,582.1
Other softwoods	.0	11.0	.0	.0	11.0
Total softwoods	714.3	2,190.5	1,381.1	282.6	4,568.5
Sugar maple	436.2	1,805.0	2,545.9	260.1	5,047.2
Soft maples	300.5	1,209.5	600.4	85.5	2,195.9
Yellow birch	104.0	1,415.3	1,190.8	52.9	2,763.0
Paper birch	92.4	1,198.0	855.1	.0	2,145.5
Gray birch	6.8	6.4	.0	.0	13.2
Beech	824.0	934.7	1,014.3	34.8	2,807.8
White ash	7.2	520.5	421.7	.0	949.4
Black ash	.0	.0	.0	.0	.0
Aspen	.0	307.3	354.7	.0	662.0
White oaks	.0	.0	118.2	28.6	146.8
Red oaks	.0	174.1	581.7	106.8	862.6
Basswood	150.2	110.5	205.4	.0	466.1
Elm	38.5	507.5	301.0	.0	847.0
Other commercial hardwoods	122.3	360.4	302.9	.0	785.6
Noncommercial hardwoods	644.0	489.7	.0	.0	1,133.7
Total hardwoods	2,726.1	9,038.9	8,492.1	568.7	20,825.8
Total, all species	3,440.4	11,229.4	9,873.2	851.3	25,394.3

Table 33.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Bennington County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	7,225	872	17	0	8,114
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,300	2,234	428	0	9,962
Red pine	0	0	0	0	0
White pine	0	128	373	17	518
Northern white-cedar	0	0	0	0	0
Hemlock	1,499	1,385	407	17	3,308
Other softwoods	0	23	0	0	23
Total softwoods	16,024	4,642	1,225	34	21,925
Sugar maple	11,842	7,844	4,290	422	24,398
Soft maples	16,758	5,764	2,740	160	25,422
Yellow birch	4,226	3,526	2,013	121	9,886
Paper birch	1,363	1,705	551	0	3,619
Gray birch	0	62	0	0	62
Beech	56,564	8,748	2,488	103	67,903
White ash	2,605	282	188	28	3,103
Black ash	0	31	0	0	31
Aspen	1,499	316	172	0	1,987
White oaks	0	509	200	13	722
Red oaks	1,363	555	729	26	2,673
Basswood	0	0	35	0	35
Elm	0	0	26	0	26
Other commercial hardwoods	2,666	2,389	722	26	5,803
Noncommercial hardwoods	31,389	2,111	87	0	33,587
Total hardwoods	130,275	33,842	14,241	899	179,257
Total, all species	146,299	38,484	15,466	933	201,182

Table 33.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	111.5	195.8	13.8	.0	321.1
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	175.3	519.5	399.4	.0	1,094.2
Red pine	.0	.0	.0	.0	.0
White pine	.0	27.8	522.3	56.2	606.3
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	90.2	278.9	403.8	47.8	820.7
Other softwoods	.0	1.6	.0	.0	1.6
Total softwoods	377.0	1,023.6	1,339.3	104.0	2,843.9
Sugar maple	311.8	2,450.7	4,842.4	1,340.3	8,945.2
Soft maples	594.9	1,606.3	2,982.7	520.2	5,704.1
Yellow birch	131.5	1,094.9	2,071.6	366.7	3,664.7
Paper birch	91.3	649.2	693.3	.0	1,433.8
Gray birch	.0	10.6	.0	.0	10.6
Beech	1,734.8	2,467.1	2,764.8	412.6	7,379.3
White ash	60.1	120.4	257.1	76.6	514.2
Black ash	.0	7.4	.0	.0	7.4
Aspen	21.2	82.2	164.6	.0	268.0
White oaks	.0	185.5	240.7	40.2	466.4
Red oaks	26.9	245.9	899.4	92.7	1,264.9
Basswood	.0	.0	35.5	.0	35.5
Elm	.0	.0	31.0	.0	31.0
Other commercial hardwoods	102.1	715.3	656.6	95.6	1,569.6
Noncommercial hardwoods	765.7	384.9	107.1	.0	1,257.7
Total hardwoods	3,840.3	10,020.4	15,746.8	2,944.9	32,552.4
Total, all species	4,217.3	11,044.0	17,086.1	3,048.9	35,396.3

Table 34.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Caledonia County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	47,594	8,773	572	0	56,939
Tamarack	0	1,044	29	0	1,073
White spruce	8,688	2,830	359	0	11,877
Black spruce	0	0	34	0	34
Red spruce	5,982	3,924	670	33	10,609
Red pine	0	0	0	0	0
White pine	0	1,749	1,211	51	3,011
Northern white-cedar	9,128	2,080	384	0	11,592
Hemlock	6,048	4,114	491	16	10,669
Other softwoods	0	15	0	0	15
Total softwoods	77,440	24,529	3,750	100	105,819
Sugar maple	31,461	6,993	2,605	214	41,273
Soft maples	9,128	2,432	264	13	11,837
Yellow birch	4,564	2,913	611	49	8,137
Paper birch	3,024	3,883	345	0	7,252
Gray birch	0	0	0	0	0
Beech	2,958	716	136	28	3,838
White ash	3,079	1,367	396	27	4,869
Black ash	0	383	59	0	442
Aspen	0	1,661	218	0	1,879
White oaks	0	0	0	0	0
Red oaks	0	0	38	0	38
Basswood	0	68	58	0	126
Elm	0	35	0	0	35
Other commercial hardwoods	0	586	143	0	729
Noncommercial hardwoods	5,927	832	0	0	6,759
Total hardwoods	60,141	21,869	4,873	331	87,214
Total, all species	137,581	46,398	8,623	431	193,033

Table 34.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	1,305.9	1,910.5	441.1	.0	3,657.5
Tamarack	.0	184.7	36.9	.0	221.6
White spruce	393.0	785.6	302.5	.0	1,481.1
Black spruce	.0	.0	23.8	.0	23.8
Red spruce	105.0	953.1	613.2	106.3	1,777.6
Red pine	.0	.0	.0	.0	.0
White pine	.0	538.6	1,587.3	191.9	2,317.8
Northern white-cedar	144.0	302.5	165.9	.0	612.4
Hemlock	197.2	941.7	530.4	46.1	1,715.4
Other softwoods	.0	7.3	.0	.0	7.3
Total softwoods	2,145.1	5,624.0	3,701.1	344.3	11,814.5
Sugar maple	896.0	2,165.8	3,196.4	945.3	7,203.5
Soft maples	185.8	678.0	261.7	35.2	1,160.7
Yellow birch	49.9	889.3	769.5	194.4	1,903.1
Paper birch	81.6	975.9	554.2	.0	1,611.7
Gray birch	.0	.0	.0	.0	.0
Beech	25.7	229.4	217.1	104.3	576.5
White ash	11.9	421.9	474.3	104.8	1,012.9
Black ash	.0	123.9	39.2	.0	163.1
Aspen	.0	468.6	310.4	.0	779.0
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	43.8	.0	43.8
Basswood	.0	21.1	102.9	.0	124.0
Elm	.0	4.3	.0	.0	4.3
Other commercial hardwoods	.0	161.0	143.0	.0	304.0
Noncommercial hardwoods	173.8	178.0	.0	.0	351.8
Total hardwoods	1,424.7	6,317.2	6,112.5	1,384.0	15,238.4
Total, all species	3,569.8	11,941.2	9,813.6	1,728.3	27,052.9

Table 35.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Chittenden County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	0	350	16	0	366
Tamarack	0	31	0	0	31
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	0	47	63	0	110
Red pine	0	0	0	0	0
White pine	0	1,193	656	0	1,849
Northern white-cedar	0	94	0	0	94
Hemlock	5,598	2,219	656	0	8,473
Other softwoods	0	265	0	0	265
Total softwoods	5,598	4,199	1,391	0	11,188
Sugar maple	22,555	7,190	2,659	106	32,510
Soft maples	2,832	1,474	332	52	4,690
Yellow birch	4,294	1,500	158	14	5,966
Paper birch	0	815	115	0	930
Gray birch	16,628	296	0	0	16,924
Beech	2,819	1,629	746	27	5,221
White ash	1,410	3,424	833	0	5,667
Black ash	0	0	0	0	0
Aspen	0	1,067	125	0	1,192
White oaks	0	0	0	0	0
Red oaks	1,370	216	189	20	1,795
Basswood	0	302	69	6	377
Elm	7,310	551	115	11	7,987
Other commercial hardwoods	2,832	1,630	159	11	4,632
Noncommercial hardwoods	23,700	1,071	0	0	24,771
Total hardwoods	85,750	21,165	5,500	247	112,662
Total, all species	91,348	25,364	6,891	247	123,850

Table 35.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	.0	77.3	16.4	.0	93.7
Tamarack	.0	7.2	.0	.0	7.2
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	.0	21.1	50.4	.0	71.5
Red pine	.0	.0	.0	.0	.0
White pine	.0	343.6	588.9	.0	932.5
Northern white-cedar	.0	8.4	.0	.0	8.4
Hemlock	99.9	519.2	551.6	.0	1,170.7
Other softwoods	.0	20.3	.0	.0	20.3
Total softwoods	99.9	997.1	1,207.3	.0	2,304.3
Sugar maple	691.3	2,111.2	3,095.4	432.5	6,330.4
Soft maples	14.0	403.8	330.1	131.2	879.1
Yellow birch	170.0	378.8	172.1	27.5	748.4
Paper birch	.0	311.7	110.4	.0	422.1
Gray birch	761.9	34.1	.0	.0	796.0
Beech	59.9	601.3	974.2	95.8	1,731.2
White ash	12.9	799.1	817.7	.0	1,629.7
Black ash	.0	.0	.0	.0	.0
Aspen	.0	264.4	112.6	.0	377.0
White oaks	.0	.0	.0	.0	.0
Red oaks	87.2	39.1	242.3	75.6	444.2
Basswood	.0	98.2	64.7	47.1	210.0
Elm	104.2	96.4	108.2	40.9	349.7
Other commercial hardwoods	23.1	382.1	130.7	21.7	557.6
Noncommercial hardwoods	508.8	246.1	.0	.0	754.9
Total hardwoods	2,433.3	5,766.3	6,158.4	872.3	15,230.3
Total, all species	2,533.2	6,763.4	7,365.7	872.3	17,534.6

Table 36.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Essex County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	65,675	15,942	1,533	0	83,150
Tamarack	0	17	17	0	34
White spruce	8,976	1,630	265	0	10,871
Black spruce	0	90	0	0	90
Red spruce	10,448	4,160	907	0	15,515
Red pine	0	0	0	0	0
White pine	0	173	99	0	272
Northern white-cedar	0	137	68	0	205
Hemlock	2,992	704	237	23	3,956
Other softwoods	0	0	0	0	0
Total softwoods	88,091	22,853	3,126	23	114,093
Sugar maple	26,873	10,208	2,102	84	39,267
Soft maples	16,428	6,969	2,102	31	25,530
Yellow birch	17,914	6,667	2,600	319	27,500
Paper birch	5,949	2,799	340	0	9,088
Gray birch	0	98	0	0	98
Beech	11,944	1,886	267	27	14,124
White ash	2,992	1,072	237	0	4,301
Black ash	1,493	160	0	0	1,653
Aspen	2,985	1,573	149	33	4,740
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	0	0	0	0
Elm	0	68	38	0	106
Other commercial hardwoods	1,496	150	67	0	1,713
Noncommercial hardwoods	43,302	1,750	0	0	45,052
Total hardwoods	131,376	33,400	7,902	494	173,172
Total, all species	219,467	56,253	11,028	517	287,265

Table 36.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	1,046.1	3,484.2	1,175.4	.0	5,705.7
Tamarack	.0	5.7	15.9	.0	21.6
White spruce	223.8	431.7	248.8	.0	904.3
Black spruce	.0	46.1	.0	.0	46.1
Red spruce	153.6	1,121.2	839.7	.0	2,114.5
Red pine	.0	.0	.0	.0	.0
White pine	.0	74.5	86.8	.0	161.3
Northern white-cedar	.0	28.6	29.7	.0	58.3
Hemlock	50.6	180.7	267.0	80.2	578.5
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,474.1	5,372.7	2,663.3	80.2	9,590.3
Sugar maple	589.3	2,821.0	2,135.8	311.3	5,857.4
Soft maples	311.5	2,189.3	2,136.9	87.5	4,725.2
Yellow birch	731.7	2,138.4	3,012.7	1,159.6	7,042.4
Paper birch	110.7	745.4	426.6	.0	1,282.7
Gray birch	.0	39.2	.0	.0	39.2
Beech	504.3	540.3	321.3	101.1	1,467.0
White ash	126.7	249.6	255.3	.0	631.6
Black ash	32.4	41.0	.0	.0	73.4
Aspen	92.4	390.6	200.6	100.7	784.3
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	.0	.0	.0	.0
Elm	.0	14.0	42.7	.0	56.7
Other commercial hardwoods	7.6	39.4	69.8	.0	116.8
Noncommercial hardwoods	357.7	194.7	.0	.0	552.4
Total hardwoods	2,864.3	9,402.9	8,601.7	1,760.2	22,629.1
Total, all species	4,338.4	14,775.6	11,265.0	1,840.4	32,219.4

Table 37.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Franklin/Grand Isle Counties, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	5,291	2,290	30	0	7,611
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	4,669	2,435	356	0	7,460
Red pine	0	0	0	0	0
White pine	0	1,412	960	88	2,460
Northern white-cedar	1,230	1,688	0	0	2,918
Hemlock	12,129	4,483	2,369	42	19,023
Other softwoods	0	0	0	0	0
Total softwoods	23,319	12,308	3,715	130	39,472
Sugar maple	25,339	6,111	1,748	197	33,395
Soft maples	8,762	5,008	818	12	14,600
Yellow birch	4,531	2,240	874	29	7,674
Paper birch	0	477	213	0	690
Gray birch	4,159	753	0	0	4,912
Beech	4,531	497	533	84	5,645
White ash	2,988	1,300	237	50	4,575
Black ash	2,459	603	0	0	3,062
Aspen	0	344	47	18	409
White oaks	0	117	47	18	182
Red oaks	1,465	244	0	0	1,709
Basswood	0	68	158	0	226
Elm	0	868	135	0	1,003
Other commercial hardwoods	2,875	1,036	167	0	4,078
Noncommercial hardwoods	9,587	1,111	67	0	10,765
Total hardwoods	66,696	20,777	5,044	408	92,925
Total, all species	90,015	33,085	8,759	538	132,397

Table 37.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	186.0	356.3	46.7	.0	589.0
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	229.4	669.5	360.1	.0	1,259.0
Red pine	.0	.0	.0	.0	.0
White pine	.0	387.7	1,178.6	401.9	1,968.2
Northern white-cedar	9.3	252.4	.0	.0	261.7
Hemlock	249.1	1,173.6	2,296.4	142.6	3,861.7
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	673.8	2,839.5	3,881.8	544.5	7,939.6
Sugar maple	537.7	1,765.1	1,978.8	761.2	5,042.8
Soft maples	87.1	1,178.8	867.3	35.2	2,168.4
Yellow birch	156.1	571.8	1,010.6	73.6	1,812.1
Paper birch	.0	126.7	202.7	.0	329.4
Gray birch	89.5	151.1	.0	.0	240.6
Beech	55.2	115.3	786.8	290.0	1,247.3
White ash	112.8	355.1	254.5	161.3	883.7
Black ash	32.3	103.1	.0	.0	135.4
Aspen	.0	64.2	44.2	62.8	171.2
White oaks	.0	36.2	68.4	64.9	169.5
Red oaks	4.2	63.2	.0	.0	67.4
Basswood	.0	12.9	153.2	.0	166.1
Elm	.0	235.1	127.8	.0	362.9
Other commercial hardwoods	13.8	206.8	154.2	.0	374.8
Noncommercial hardwoods	174.1	183.0	99.7	.0	456.8
Total hardwoods	1,262.8	5,168.4	5,748.2	1,449.0	13,628.4
Total, all species	1,936.6	8,007.9	9,630.0	1,993.5	21,568.0

Table 38.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Lamoille County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	10,541	2,900	137	0	13,578
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	1,459	2,747	565	34	4,805
Red pine	0	0	0	0	0
White pine	0	55	69	0	124
Northern white-cedar	0	0	62	0	62
Hemlock	11,755	5,083	835	0	17,673
Other softwoods	0	0	0	0	0
Total softwoods	23,755	10,785	1,668	34	36,242
Sugar maple	20,636	10,134	2,771	284	33,825
Soft maples	11,755	6,200	834	10	18,799
Yellow birch	7,336	4,251	1,003	133	12,723
Paper birch	1,502	1,744	309	0	3,555
Gray birch	0	1,759	0	0	1,759
Beech	13,385	2,734	1,280	101	17,500
White ash	1,459	585	100	0	2,144
Black ash	0	0	0	0	0
Aspen	0	0	52	0	52
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	156	17	0	173
Elm	1,602	219	0	0	1,821
Other commercial hardwoods	2,917	196	40	0	3,153
Noncommercial hardwoods	10,541	932	0	0	11,473
Total hardwoods	71,133	28,910	6,406	528	106,977
Total, all species	94,888	39,695	8,074	562	143,219

Table 38.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	236.1	621.3	98.8	.0	956.2
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	15.1	684.5	620.5	93.9	1,414.0
Red pine	.0	.0	.0	.0	.0
White pine	.0	16.1	79.1	.0	95.2
Northern white-cedar	.0	.0	19.3	.0	19.3
Hemlock	260.8	1,219.8	684.9	.0	2,165.5
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	512.0	2,541.7	1,502.6	93.9	4,650.2
Sugar maple	677.9	2,585.0	2,802.7	1,062.9	7,128.5
Soft maples	522.2	1,381.1	975.6	54.1	2,933.0
Yellow birch	269.4	1,181.6	1,038.8	587.2	3,077.0
Paper birch	35.0	611.5	356.3	.0	1,002.8
Gray birch	.0	281.8	.0	.0	281.8
Beech	381.5	807.9	1,836.6	375.2	3,401.2
White ash	48.0	186.0	124.1	.0	358.1
Black ash	.0	.0	.0	.0	.0
Aspen	.0	.0	100.8	.0	100.8
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	34.6	11.8	.0	46.4
Elm	6.9	52.7	.0	.0	59.6
Other commercial hardwoods	113.5	52.4	37.0	.0	202.9
Noncommercial hardwoods	159.9	123.7	.0	.0	283.6
Total hardwoods	2,214.3	7,298.3	7,283.7	2,079.4	18,875.7
Total, all species	2,726.3	9,840.0	8,786.3	2,173.3	23,525.9

Table 39.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Orange County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	15,412	3,359	189	0	18,960
Tamarack	0	0	0	0	0
White spruce	2,593	564	91	0	3,248
Black spruce	0	0	0	0	0
Red spruce	7,584	6,663	1,217	0	15,464
Red pine	0	0	0	0	0
White pine	1,527	3,577	1,605	130	6,839
Northern white-cedar	1,297	1,248	122	0	2,667
Hemlock	21,603	6,764	1,986	49	30,402
Other softwoods	0	193	0	0	193
Total softwoods	50,016	22,368	5,210	179	77,773
Sugar maple	28,985	12,576	3,667	330	45,558
Soft maples	1,527	2,433	944	28	4,932
Yellow birch	1,527	1,924	331	13	3,795
Paper birch	0	1,360	429	0	1,789
Gray birch	0	0	0	0	0
Beech	3,054	1,158	579	63	4,854
White ash	1,527	1,626	162	0	3,315
Black ash	0	244	58	0	302
Aspen	6,108	2,080	915	0	9,103
White oaks	0	0	0	0	0
Red oaks	0	985	345	57	1,387
Basswood	1,527	614	138	7	2,286
Elm	0	70	59	0	129
Other commercial hardwoods	0	719	224	0	943
Noncommercial hardwoods	13,798	3,152	53	0	17,003
Total hardwoods	58,053	28,941	7,904	498	95,396
Total, all species	108,069	51,309	13,114	677	173,169

Table 39.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	683.6	652.0	124.6	.0	1,460.2
Tamarack	.0	.0	.0	.0	.0
White spruce	22.5	210.5	110.1	.0	343.1
Black spruce	.0	.0	.0	.0	.0
Red spruce	362.8	1,707.4	1,136.0	.0	3,206.2
Red pine	.0	.0	.0	.0	.0
White pine	34.7	984.2	2,098.5	575.6	3,693.0
Northern white-cedar	11.0	162.7	61.4	.0	235.1
Hemlock	521.4	1,788.6	1,998.6	187.4	4,496.0
Other softwoods	.0	27.3	.0	.0	27.3
Total softwoods	1,636.0	5,532.7	5,529.2	763.0	13,460.9
Sugar maple	677.2	3,648.1	4,407.1	1,657.5	10,389.9
Soft maples	39.5	641.3	849.6	90.7	1,621.1
Yellow birch	56.2	489.1	364.3	78.2	987.8
Paper birch	.0	592.4	485.8	.0	1,078.2
Gray birch	.0	.0	.0	.0	.0
Beech	152.0	379.7	617.3	331.1	1,480.1
White ash	58.2	526.2	164.0	.0	748.4
Black ash	.0	55.4	42.2	.0	97.6
Aspen	193.9	539.2	1,011.7	.0	1,744.8
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	271.2	332.8	1,224.3	1,828.3
Basswood	9.1	173.5	162.8	40.9	386.3
Elm	.0	32.9	41.7	.0	74.6
Other commercial hardwoods	.0	233.4	213.8	.0	447.2
Noncommercial hardwoods	387.5	538.1	50.9	.0	976.5
Total hardwoods	1,573.6	8,120.5	8,744.0	3,422.7	21,860.8
Total, all species	3,209.6	13,653.2	14,273.2	4,185.7	35,321.7

Table 40.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Orleans County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	27,475	11,542	1,006	0	40,023
Tamarack	0	0	0	0	0
White spruce	1,617	1,376	394	0	3,387
Black spruce	2,785	522	17	0	3,324
Red spruce	9,190	5,074	447	51	14,762
Red pine	0	0	0	0	0
White pine	0	606	298	18	922
Northern white-cedar	20,377	10,532	1,444	18	32,371
Hemlock	12,310	1,672	440	0	14,422
Other softwoods	0	0	0	0	0
Total softwoods	73,754	31,324	4,046	87	109,211
Sugar maple	15,293	8,172	1,171	216	24,852
Soft maples	13,830	2,532	1,048	34	17,444
Yellow birch	6,146	4,149	1,138	30	11,463
Paper birch	3,036	5,441	275	0	8,752
Gray birch	0	2,378	0	0	2,378
Beech	0	591	187	0	778
White ash	3,036	643	226	14	3,919
Black ash	1,500	70	17	0	1,587
Aspen	1,537	533	401	0	2,471
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	402	135	0	537
Elm	0	163	66	0	229
Other commercial hardwoods	0	399	238	15	652
Noncommercial hardwoods	1,537	1,479	0	0	3,016
Total hardwoods	45,915	26,952	4,902	309	78,078
Total, all species	119,669	58,276	8,948	396	187,289

Table 40.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	532.0	2,616.7	824.0	.0	3,972.7
Tamarack	.0	.0	.0	.0	.0
White spruce	95.0	336.3	324.4	.0	755.7
Black spruce	111.7	148.9	14.4	.0	275.0
Red spruce	435.7	1,110.1	457.8	183.7	2,187.3
Red pine	.0	.0	.0	.0	.0
White pine	.0	221.3	375.9	104.0	701.2
Northern white-cedar	383.9	1,415.8	602.0	18.6	2,420.3
Hemlock	387.9	433.0	364.5	.0	1,185.4
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	1,946.2	6,282.1	2,963.0	306.3	11,497.6
Sugar maple	424.7	2,070.3	1,271.0	841.5	4,607.5
Soft maples	101.3	769.9	910.0	124.3	1,905.5
Yellow birch	80.2	1,230.2	1,180.4	79.3	2,570.1
Paper birch	130.4	1,638.1	337.7	.0	2,106.2
Gray birch	.0	398.3	.0	.0	398.3
Beech	.0	164.2	170.7	.0	334.9
White ash	60.9	149.1	179.3	53.8	443.1
Black ash	125.4	19.7	25.2	.0	170.3
Aspen	80.2	158.0	349.7	.0	587.9
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	146.0	112.9	.0	258.9
Elm	.0	47.8	73.1	.0	120.9
Other commercial hardwoods	.0	125.1	189.0	48.9	363.0
Noncommercial hardwoods	4.7	221.2	.0	.0	225.9
Total hardwoods	1,007.8	7,137.9	4,799.0	1,147.8	14,092.5
Total, all species	2,954.0	13,420.0	7,762.0	1,454.1	25,590.1

Table 41.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Rutland County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	8,640	582	149	0	9,371
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,186	3,275	577	0	11,038
Red pine	0	294	0	0	294
White pine	13,925	6,086	1,394	204	21,609
Northern white-cedar	1,440	682	69	0	2,191
Hemlock	12,875	5,503	1,288	52	19,718
Other softwoods	1,426	66	0	0	1,492
Total softwoods	45,492	16,488	3,477	256	65,713
Sugar maple	15,090	8,330	3,169	537	27,126
Soft maples	6,937	5,597	1,641	56	14,231
Yellow birch	5,511	2,929	1,344	150	9,934
Paper birch	0	3,232	787	0	4,019
Gray birch	2,880	33	0	0	2,913
Beech	31,174	4,400	1,164	30	36,768
White ash	9,730	2,790	873	16	13,409
Black ash	0	0	0	0	0
Aspen	2,880	1,001	373	0	4,254
White oaks	4,236	869	102	29	5,236
Red oaks	2,712	1,920	670	23	5,325
Basswood	0	275	80	0	355
Elm	7,172	1,288	188	16	8,664
Other commercial hardwoods	16,342	5,139	526	16	22,023
Noncommercial hardwoods	27,962	4,920	306	0	33,188
Total hardwoods	132,626	42,723	11,223	873	187,445
Total, all species	178,118	59,211	14,700	1,129	253,158

Table 41.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	122.2	120.2	60.1	.0	302.5
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	121.0	696.9	623.4	.0	1,441.3
Red pine	.0	116.5	.0	.0	116.5
White pine	369.4	1,408.2	1,562.3	979.1	4,319.0
Northern white-cedar	18.4	82.7	26.5	.0	127.6
Hemlock	170.5	1,343.5	1,219.5	153.7	2,887.2
Other softwoods	45.9	9.5	.0	.0	55.4
Total softwoods	847.4	3,777.5	3,491.8	1,132.8	9,249.5
Sugar maple	349.3	2,332.1	3,752.5	2,079.8	8,513.7
Soft maples	157.6	1,556.0	1,481.5	140.1	3,335.2
Yellow birch	115.6	940.7	1,385.7	459.3	2,901.3
Paper birch	.0	1,214.4	988.9	.0	2,203.3
Gray birch	106.9	6.4	.0	.0	113.3
Beech	466.5	1,400.9	1,247.7	72.1	3,187.2
White ash	340.4	746.9	893.5	104.8	2,085.6
Black ash	.0	.0	.0	.0	.0
Aspen	181.3	357.7	406.5	.0	945.5
White oaks	30.6	315.8	100.9	207.9	655.2
Red oaks	184.8	542.3	669.6	97.6	1,494.3
Basswood	.0	119.0	79.6	.0	198.6
Elm	89.7	363.5	166.0	34.5	653.7
Other commercial hardwoods	569.8	1,040.2	524.6	27.9	2,162.5
Noncommercial hardwoods	581.4	1,167.3	278.4	.0	2,027.1
Total hardwoods	3,173.9	12,103.2	11,975.4	3,224.0	30,476.5
Total, all species	4,021.3	15,880.7	15,467.2	4,356.8	39,726.0

Table 42.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Washington County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	26,972	5,276	543	0	32,791
Tamarack	0	198	34	0	232
White spruce	2,830	1,830	97	0	4,757
Black spruce	0	0	0	0	0
Red spruce	13,517	9,437	1,019	0	23,973
Red pine	0	0	0	0	0
White pine	1,501	1,380	878	0	3,759
Northern white-cedar	10,512	871	95	0	11,478
Hemlock	6,027	2,952	717	0	9,696
Other softwoods	0	17	0	0	17
Total softwoods	61,359	21,961	3,383	0	86,703
Sugar maple	25,546	10,764	1,824	97	38,231
Soft maples	13,463	4,910	830	4	19,207
Yellow birch	4,508	4,092	1,068	111	9,779
Paper birch	11,990	10,844	1,048	32	23,914
Gray birch	1,506	444	0	0	1,950
Beech	10,468	2,126	619	33	13,246
White ash	1,501	1,097	420	5	3,023
Black ash	0	427	180	0	607
Aspen	0	493	830	17	1,340
White oaks	0	0	0	0	0
Red oaks	0	281	69	0	350
Basswood	0	0	0	0	0
Elm	0	68	17	8	93
Other commercial hardwoods	1,490	3,371	314	50	5,225
Noncommercial hardwoods	10,494	655	0	0	11,149
Total hardwoods	80,966	39,572	7,219	357	128,114
Total, all species	142,325	61,533	10,602	357	214,817

Table 42.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	776.3	1,267.0	404.7	.0	2,448.0
Tamarack	.0	62.5	29.0	.0	91.5
White spruce	21.3	544.5	91.5	.0	657.3
Black spruce	.0	.0	.0	.0	.0
Red spruce	406.9	2,614.4	1,038.3	.0	4,059.6
Red pine	.0	.0	.0	.0	.0
White pine	43.7	428.4	1,077.7	.0	1,549.8
Northern white-cedar	172.5	135.9	30.6	.0	339.0
Hemlock	224.5	728.2	697.3	.0	1,650.0
Other softwoods	.0	7.6	.0	.0	7.6
Total softwoods	1,645.2	5,788.5	3,369.1	.0	10,802.8
Sugar maple	523.8	3,177.8	2,143.5	615.4	6,460.5
Soft maples	426.4	1,536.3	784.1	61.5	2,808.3
Yellow birch	165.3	1,289.8	1,129.5	415.2	2,999.8
Paper birch	393.1	3,149.5	1,310.0	153.5	5,006.1
Gray birch	123.3	99.7	.0	.0	223.0
Beech	461.7	571.9	944.3	131.8	2,109.7
White ash	7.6	253.6	475.1	36.9	773.2
Black ash	.0	107.7	189.6	.0	297.3
Aspen	.0	199.4	1,024.4	56.9	1,280.7
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	96.5	64.3	.0	160.8
Basswood	.0	.0	.0	.0	.0
Elm	.0	7.9	21.6	52.2	81.7
Other commercial hardwoods	49.0	707.0	359.6	238.0	1,353.6
Noncommercial hardwoods	183.3	108.9	.0	.0	292.2
Total hardwoods	2,333.5	11,306.0	8,446.0	1,761.4	23,846.9
Total, all species	3,978.7	17,094.5	11,815.1	1,761.4	34,649.7

Table 43.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Windham County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	7,322	1,186	42	0	8,550
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	7,259	4,768	903	29	12,959
Red pine	0	360	412	17	789
White pine	4,339	6,086	1,865	418	12,708
Northern white-cedar	0	0	0	0	0
Hemlock	2,896	8,269	2,641	50	13,856
Other softwoods	0	0	0	0	0
Total softwoods	21,816	20,669	5,863	514	48,862
Sugar maple	16,011	5,750	2,395	239	24,395
Soft maples	8,701	11,680	2,873	82	23,336
Yellow birch	4,339	3,058	619	97	8,113
Paper birch	10,180	4,094	848	0	15,122
Gray birch	2,909	261	0	0	3,170
Beech	11,586	4,957	1,693	30	18,266
White ash	0	1,418	631	0	2,049
Black ash	0	0	0	0	0
Aspen	0	802	132	15	949
White oaks	0	0	17	0	17
Red oaks	0	1,450	1,798	125	3,373
Basswood	0	33	0	0	33
Elm	1,454	0	36	0	1,490
Other commercial hardwoods	8,629	4,132	1,114	0	13,875
Noncommercial hardwoods	7,087	1,282	94	0	8,463
Total hardwoods	70,896	38,917	12,250	588	122,651
Total, all species	92,712	59,586	18,113	1,102	171,513

Table 43.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	202.3	271.4	39.3	.0	513.0
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	95.0	1,229.4	778.1	71.3	2,173.8
Red pine	.0	65.9	659.4	103.8	829.1
White pine	65.1	1,447.4	2,429.9	2,116.1	6,058.5
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	82.0	1,869.2	2,405.6	137.0	4,493.8
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	444.4	4,883.3	6,312.3	2,428.2	14,068.2
Sugar maple	430.6	1,934.4	2,452.3	905.2	5,722.5
Soft maples	143.9	3,217.4	2,732.3	263.1	6,356.7
Yellow birch	51.1	1,039.2	697.7	259.7	2,047.7
Paper birch	140.2	1,566.7	966.0	.0	2,672.9
Gray birch	36.2	37.4	.0	.0	73.6
Beech	290.1	1,495.2	1,776.4	73.2	3,634.9
White ash	.0	395.6	655.5	.0	1,051.1
Black ash	.0	.0	.0	.0	.0
Aspen	.0	265.1	208.9	49.1	523.1
White oaks	.0	.0	11.9	.0	11.9
Red oaks	.0	503.8	2,261.7	515.2	3,280.7
Basswood	.0	8.5	.0	.0	8.5
Elm	138.2	.0	45.6	.0	183.8
Other commercial hardwoods	181.2	1,137.8	1,262.4	.0	2,581.4
Noncommercial hardwoods	210.3	196.4	117.2	.0	523.9
Total hardwoods	1,621.8	11,797.5	13,187.9	2,065.5	28,672.7
Total, all species	2,066.2	16,680.8	19,500.2	4,493.7	42,740.9

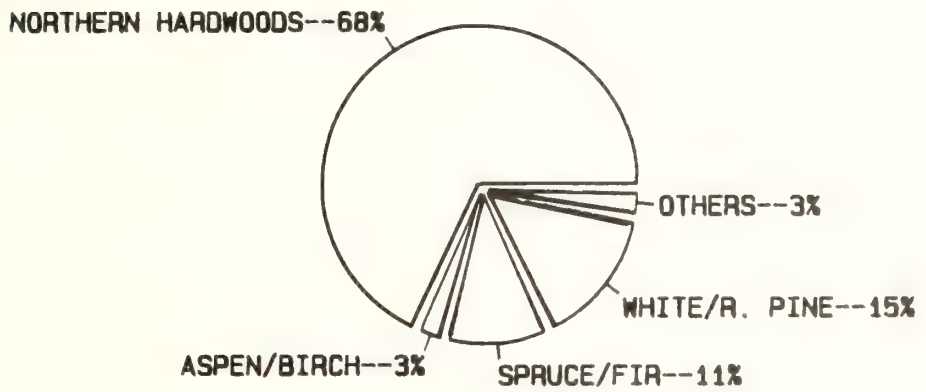
Table 44.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Windsor County, Vermont, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	0	368	116	0	484
Tamarack	0	0	50	0	50
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	8,489	5,664	1,381	16	15,550
Red pine	0	0	0	0	0
White pine	11,928	8,292	2,964	162	23,346
Northern white-cedar	0	0	0	0	0
Hemlock	7,045	4,140	2,557	25	13,767
Other softwoods	0	0	0	0	0
Total softwoods	27,462	18,464	7,068	203	53,197
Sugar maple	38,185	17,035	6,163	367	61,750
Soft maples	9,848	7,002	1,034	23	17,907
Yellow birch	1,404	2,864	930	98	5,296
Paper birch	1,370	10,021	1,346	16	12,753
Gray birch	0	258	0	0	258
Beech	21,141	6,956	2,133	108	30,338
White ash	3,552	2,918	1,230	29	7,729
Black ash	0	0	16	0	16
Aspen	2,788	1,146	320	16	4,270
White oaks	0	127	52	0	179
Red oaks	0	1,439	470	65	1,974
Basswood	0	212	76	14	302
Elm	2,740	157	116	0	3,013
Other commercial hardwoods	1,417	2,490	435	14	4,356
Noncommercial hardwoods	11,297	4,583	16	0	15,896
Total hardwoods	93,742	57,208	14,337	750	166,037
Total, all species	121,204	75,672	21,405	953	219,234

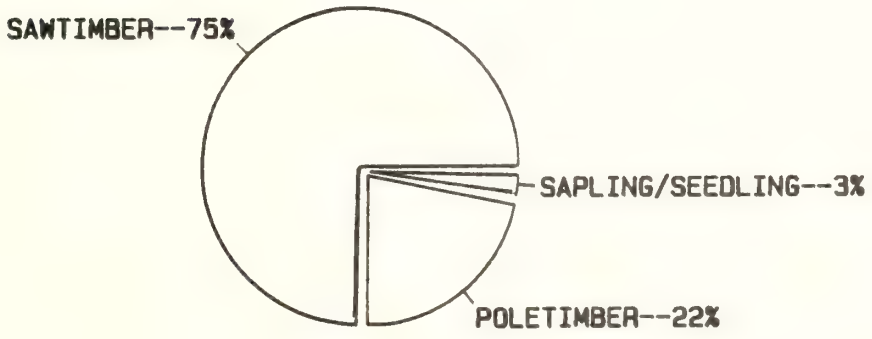
Table 44.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	.0	74.5	77.5	.0	152.0
Tamarack	.0	.0	29.3	.0	29.3
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	112.7	1,466.0	1,173.6	57.5	2,809.8
Red pine	.0	.0	.0	.0	.0
White pine	469.8	2,022.5	3,141.2	717.5	6,351.0
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	145.0	1,149.3	2,306.3	57.5	3,658.1
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	727.5	4,712.3	6,727.9	832.5	13,000.2
Sugar maple	1,087.5	4,509.0	5,767.9	1,204.4	12,568.8
Soft maples	303.8	1,499.0	950.4	66.4	2,819.6
Yellow birch	73.0	848.0	887.4	222.9	2,031.3
Paper birch	97.6	3,214.6	1,461.0	39.1	4,812.3
Gray birch	.0	37.1	.0	.0	37.1
Beech	470.5	1,760.0	1,840.7	240.6	4,311.8
White ash	202.2	847.6	1,171.7	120.6	2,342.1
Black ash	.0	.0	12.8	.0	12.8
Aspen	107.6	270.1	354.1	10.1	741.9
White oaks	.0	32.9	37.0	.0	69.9
Red oaks	.0	459.3	431.4	118.2	1,008.9
Basswood	.0	64.5	63.1	22.3	149.9
Elm	18.3	60.2	117.3	.0	195.8
Other commercial hardwoods	98.7	759.5	389.0	20.4	1,267.6
Noncommercial hardwoods	253.4	752.6	1.7	.0	1,007.7
Total hardwoods	2,712.6	15,114.4	13,485.5	2,065.0	33,377.5
Total, all species	3,440.1	19,826.7	20,213.4	2,897.5	46,377.7

ABOVEGROUND BIOMASS of CULL and SALVABLE DEAD TREES



FOREST-TYPE GROUP



STANDSIZE CLASS

Table 45.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	10,200.3	1,223.3*	458.8*	.0	11,882.4	15
Spruce/fir	6,187.7	1,907.1	590.9*	.0	8,685.7	14
Oak/pine	33.1**	83.6**	.0	.0	116.7	77
Oak/hickory	802.4*	550.6*	108.6**	23.7**	1,485.3	29
Elm/ash/red maple	466.9*	264.7**	95.9**	.0	827.5	32
Northern hardwoods	41,625.5	11,560.5	1,334.5*	.0	54,520.5	5
Aspen/birch	420.8**	1,890.9*	.0	.0	2,311.7	26
Total, all groups	59,736.7	17,480.7	2,588.7	23.7	79,829.8	3.1
Sampling error (percent)	5	9	17	100	3.1	
	Thousand acres					Percent
White/red pine	522.0	65.3*	44.0*	.0	631.3	10
Spruce/fir	358.4	153.5	121.7	.0	633.6	9
Oak/pine	6.7**	6.8**	.0	.0	13.5	71
Oak/hickory	80.7*	45.4*	31.9*	6.4**	164.4	20
Elm/ash/red maple	43.6*	28.3*	27.1*	.0	99.0	26
Northern hardwoods	1,832.3	624.6	235.0	5.6**	2,697.5	3
Aspen/birch	44.1*	124.6	14.1**	.0	182.8	20
Total, all groups	2,887.8	1,048.5	473.8	12.0	4,422.1	.7
Sampling error (percent)	3	7	10	71	.7	
	Green tons per acre[b]					
White/red pine	19.5	18.7	10.4	.0	18.8	
Spruce/fir	17.3	12.4	4.9	.0	13.7	
Oak/pine	4.9	12.3	.0	.0	8.6	
Oak/hickory	9.9	12.1	3.4	3.7	9.0	
Elm/ash/red maple	10.7	9.4	3.5	.0	8.4	
Northern hardwoods	22.7	18.5	5.7	.0	20.2	
Aspen/birch	9.5	15.2	.0	.0	12.6	
All groups	20.7	16.7	5.5	2.0	18.1	

[a] Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b] Per acre estimates are based on the timberland area in each forest-type group and stand-size class

Table 46.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Addison County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	189.5**	106.7**	.0	.0	296.2	65
Spruce/fir	.0	31.4**	.0	.0	31.4	100
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	91.7**	.0	28.6**	.0	120.3	70
Elm/ash/red maple	138.0**	.0	.0	.0	138.0	100
Northern hardwoods	1,425.9*	545.3*	38.4**	.0	2,009.6	20
Aspen/birch	142.9**	76.2**	.0	.0	219.1	74
Total, all groups	1,988.0	759.6	67.0	.0	2,814.6	13.0
Sampling error (percent)	20	35	60	-	13.0	
	Thousand acres					Percent
White/red pine	22.9**	7.8**	.0	.0	30.7	49
Spruce/fir	.0	7.7**	.0	.0	7.7	100
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	16.2**	.0	11.6**	.0	27.8	51
Elm/ash/red maple	8.5**	.0	.0	.0	8.5	100
Northern hardwoods	124.1	51.3*	13.7**	5.6**	194.7	12
Aspen/birch	7.7**	8.5**	.0	.0	16.2	71
Total, all groups	179.4	75.3	25.3	5.6	285.6	2.2
Sampling error (percent)	12	27	48	100	2.2	
	Green tons per acre[b]					
White/red pine	8.3	8.7	.0	.0	8.4	
Spruce/fir	.0	3.3	.0	.0	3.3	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	5.7	.0	2.5	.0	4.3	
Elm/ash/red maple	16.2	.0	.0	.0	16.2	
Northern hardwoods	9.3	10.0	2.1	.0	8.7	
Aspen/birch	18.6	9.0	.0	.0	13.5	
All groups	9.6	9.1	2.3	.0	8.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 47.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Bennington County, Vermont, 198

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	9.3**	.0	9.3	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	93.6**	.0	27.3**	.0	120.9	64
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,297.1	1,155.6*	142.7**	.0	5,595.4	12
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	4,390.7	1,155.6	179.3	.0	5,725.6	11.2
Sampling error (percent)	15	48	53	-	11.2	
	Thousand acres					Percent
White/red pine	.0	.0	6.5**	.0	6.5	100
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	14.2**	.0	6.4**	.0	20.6	58
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	251.2	56.6*	19.9**	.0	327.7	4
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	265.4	56.6	32.8	.0	354.8	1.8
Sampling error (percent)	8	33	38	-	1.8	
	Green tons per acre[b]					
White/red pine	.0	.0	1.4	.0	1.4	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	6.6	.0	4.3	.0	5.9	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	17.1	20.4	7.2	.0	17.1	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	16.5	20.4	5.5	.0	16.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size clas

Table 48.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Caledonia County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	393.7**	29.4**	.0	.0	423.1	48
Spruce/fir	287.8*	259.1*	2.0**	.0	548.9	32
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,364.8*	820.1*	144.0**	.0	2,328.9	20
Aspen/birch	.0	165.3**	.0	.0	165.3	100
Total, all groups	2,046.3	1,273.9	146.0	.0	3,466.2	11.0
Sampling error (percent)	21	27	96	-	11.0	
	Thousand acres					Percent
White/red pine	44.2*	7.3**	.0	.0	51.5	35
Spruce/fir	44.1*	28.2*	14.6**	.0	86.9	24
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	66.8*	52.0*	20.2**	.0	139.0	17
Aspen/birch	.0	7.6**	7.3**	.0	14.9	71
Total, all groups	155.1	95.1	42.1	.0	292.3	3.8
Sampling error (percent)	15	24	39	-	3.8	
	Green tons per acre[b]					
White/red pine	8.9	4.0	.0	.0	8.2	
Spruce/fir	6.5	9.2	.1	.0	6.3	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	20.4	15.8	7.1	.0	16.8	
Aspen/birch	.0	21.8	.0	.0	11.1	
All groups	13.2	13.4	3.5	.0	11.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 49.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Chittenden County, Vermont, 193

Forest-type group	Stand-size class				All classes	Samplin error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percen
White/red pine	403.3**	.0	57.8**	.0	461.1	51
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	52.7**	23.7**	76.4	76
Elm/ash/red maple	116.3**	.0	.0	.0	116.3	69
Northern hardwoods	2,075.7	91.4**	291.5*	.0	2,458.6	16
Aspen/birch	.0	67.6**	.0	.0	67.6	83
Total, all groups	2,595.3	159.0	402.0	23.7	3,180.0	10.3
Sampling error (percent)	15	67	27	100	10.3	
	Thousand acres					Percen
White/red pine	20.7**	.0	7.2**	.0	27.9	49
Spruce/fir	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	7.3**	6.4**	13.7	71
Elm/ash/red maple	13.5**	.0	.0	.0	13.5	68
Northern hardwoods	91.1	7.0**	48.2*	.0	146.3	12
Aspen/birch	.0	13.5**	.0	.0	13.5	68
Total, all groups	125.3	20.5	62.7	6.4	214.9	3.8
Sampling error (percent)	12	56	20	100	3.8	
	Green tons per acre[b]					
White/red pine	19.5	.0	8.0	.0	16.5	
Spruce/fir	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	7.2	3.7	5.6	
Elm/ash/red maple	8.6	.0	.0	.0	8.6	
Northern hardwoods	22.8	13.1	6.0	.0	16.8	
Aspen/birch	.0	5.0	.0	.0	5.0	
All groups	20.7	7.8	6.4	3.7	14.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class

Table 50.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Essex County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	.0	.0	.0	-
Spruce/fir	1,210.9*	472.9*	99.8**	.0	1,783.6	32
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	50.3**	.0	.0	.0	50.3	100
Northern hardwoods	2,291.9*	1,985.0*	264.7*	.0	4,541.6	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	3,553.1	2,457.9	364.5	.0	6,375.5	10.2
Sampling error (percent)	21	22	33	-	10.2	
	Thousand acres					Percent
White/red pine	.0	.0	.0	.0	.0	-
Spruce/fir	44.2*	51.5*	20.0**	.0	115.7	22
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	7.4**	.0	.0	.0	7.4	100
Northern hardwoods	110.5	110.6	49.5**	.0	270.6	10
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	162.1	162.1	69.5	.0	393.7	2.0
Sampling error (percent)	16	16	25	-	2.0	
	Green tons per acre[b]					
White/red pine	.0	.0	.0	.0	.0	
Spruce/fir	27.4	9.2	5.0	.0	15.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	6.8	.0	.0	.0	6.8	
Northern hardwoods	20.7	17.9	5.3	.0	16.8	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	21.9	15.2	5.2	.0	16.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 51.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Franklin/Grand Isle Counties, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	914.6*	.0	.0	.0	914.6	45
Spruce/fir	407.0**	101.7	.0	.0	508.7	80
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	9.2**	.0	.0	9.2	100
Elm/ash/red maple	.0	226.8**	9.4**	.0	236.2	65
Northern hardwoods	2,450.4*	464.4*	37.7**	.0	2,952.5	24
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	3,772.0	802.1	47.1	.0	4,621.2	15.8
Sampling error (percent)	21	31	79	-	15.8	
	Thousand acres					Percent
White/red pine	67.7*	.0	.0	.0	67.7	29
Spruce/fir	7.3**	6.0	6.9**	.0	20.2	50
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	2.9**	.0	.0	2.9	100
Elm/ash/red maple	.0	21.3**	13.8**	.0	35.1	42
Northern hardwoods	100.2	38.2*	13.8**	.0	152.2	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	175.2	68.4	34.5	.0	278.1	3.4
Sampling error (percent)	12	29	28	-	3.4	
	Green tons per acre[b]					
White/red pine	13.5	.0	.0	.0	13.5	
Spruce/fir	55.8	17.0	.0	.0	25.2	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	3.2	.0	.0	3.2	
Elm/ash/red maple	.0	10.6	.7	.0	6.7	
Northern hardwoods	24.5	12.2	2.7	.0	19.4	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	21.5	11.7	1.4	.0	16.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 52.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Lamoille County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	159.6**	.0	.0	.0	159.6	100
Spruce/fir	265.4**	.0	73.3**	.0	338.7	61
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,105.3	1,575.1*	.0	.0	5,680.4	11
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	4,530.3	1,575.1	73.3	.0	6,178.7	8.5
Sampling error (percent)	15	32	75	-	8.5	
	Thousand acres					Percent
White/red pine	7.2**	.0	.0	.0	7.2	100
Spruce/fir	14.6**	.0	15.8**	.0	30.4	43
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	124.7	65.3*	7.9**	.0	197.9	8
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	146.5	65.3	23.7	.0	235.5	1.7
Sampling error (percent)	12	27	12	-	1.7	
	Green tons per acre[b]					
White/red pine	22.2	.0	.0	.0	22.2	
Spruce/fir	18.2	.0	4.6	.0	11.1	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	32.9	24.1	.0	.0	28.7	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	30.9	24.1	3.1	.0	26.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 53.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Orange County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,303.9	.0	143.2	.0	1,447.1	33
Spruce/fir	330.4	65.7	62.0	.0	458.1	28
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	168.3	.0	.0	.0	168.3	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	3,671.1	553.1	.0	.0	4,224.2	21
Aspen/birch	77.6	122.8	.0	.0	200.4	71
Total, all groups	5,551.3	741.6	205.2	.0	6,498.1	12.1
Sampling error (percent)	15	50	64	-	12.1	
	Thousand acres					Percent
White/red pine	67.2*	.0	12.7**	.0	79.9	27
Spruce/fir	44.3*	7.7**	7.8**	.0	59.8	25
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	7.5**	.0	.0	.0	7.5	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	135.0	37.8*	6.8**	.0	179.6	13
Aspen/birch	7.5**	7.6**	.0	.0	15.1	69
Total, all groups	261.5	53.1	27.3	.0	341.9	4.0
Sampling error (percent)	9	35	50	-	4.0	
	Green tons per acre[b]					
White/red pine	19.4	.0	11.3	.0	18.1	
Spruce/fir	7.5	8.5	7.9	.0	7.7	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	22.4	.0	.0	.0	22.4	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	27.2	14.6	.0	.0	23.5	
Aspen/birch	10.3	16.2	.0	.0	13.3	
All groups	21.2	14.0	7.5	.0	19.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 54.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Orleans County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	103.3**	.0	.0	103.3	100
Spruce/fir	1,941.9*	559.5**	155.7**	.0	2,657.1	23
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,956.9*	1,264.4*	.0	.0	3,221.3	24
Aspen/birch	.0	714.6**	.0	.0	714.6	58
Total, all groups	3,898.8	2,641.8	155.7	.0	6,696.3	12.2
Sampling error (percent)	23	25	71	-	12.2	
	Thousand acres					Percent
White/red pine	.0	7.4**	.0	.0	7.4	100
Spruce/fir	96.3	30.4*	30.0*	.0	156.7	16
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	67.9*	50.7*	.0	.0	118.6	19
Aspen/birch	.0	22.4**	.0	.0	22.4	56
Total, all groups	164.2	110.9	30.0	.0	305.1	3.9
Sampling error (percent)	15	22	49	-	3.9	
	Green tons per acre[b]					
White/red pine	.0	14.0	.0	.0	14.0	
Spruce/fir	20.2	18.4	5.2	.0	17.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	28.8	24.9	.0	.0	27.2	
Aspen/birch	.0	31.9	.0	.0	31.9	
All groups	23.7	23.8	5.2	.0	21.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 55.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Rutland County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	875.2*	366.1**	.0	.0	1,241.3	28
Spruce/fir	401.2**	.0	151.0**	.0	552.2	60
Oak/pine	33.1**	.0	.0	.0	33.1	100
Oak/hickory	.0	392.8**	.0	.0	392.8	51
Elm/ash/red maple	.0	37.9**	18.1**	.0	56.0	75
Northern hardwoods	3,950.8	430.4*	157.3**	.0	4,538.5	16
Aspen/birch	.0	62.6**	.0	.0	62.6	100
Total, all groups	5,260.3	1,289.8	326.4	.0	6,876.5	10.0
Sampling error (percent)	15	27	59	-	10.0	
	Thousand acres					Percent
White/red pine	84.0*	28.4*	.0	.0	112.4	21
Spruce/fir	14.3**	.0	19.1**	.0	33.4	44
Oak/pine	6.7**	.0	.0	.0	6.7	100
Oak/hickory	.0	27.6*	6.7**	.0	34.3	43
Elm/ash/red maple	.0	7.0**	6.7**	.0	13.7	71
Northern hardwoods	184.5	33.5*	19.1*	.0	237.1	11
Aspen/birch	.0	7.1 **	.0	.0	7.1	100
Total, all groups	289.5	103.6	51.6	.0	444.7	1.3
Sampling error (percent)	9	23	31	-	1.3	
	Green tons per acre[b]					
White/red pine	10.4	12.9	.0	.0	11.0	
Spruce/fir	28.1	.0	7.9	.0	16.5	
Oak/pine	4.9	.0	.0	.0	4.9	
Oak/hickory	.0	14.2	.0	.0	11.5	
Elm/ash/red maple	.0	5.4	2.7	.0	4.1	
Northern hardwoods	21.4	12.8	8.2	.0	19.1	
Aspen/birch	.0	8.8	.0	.0	8.8	
All groups	18.2	12.4	6.3	.0	15.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 56.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Washington County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	218.1**	189.5**	.0	.0	407.6	57
Spruce/fir	556.9*	62.6**	.0	.0	619.5	41
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	148.6**	.0	.0	148.6	100
Elm/ash/red maple	64.0**	.0	68.4**	.0	132.4	71
Northern hardwoods	2,622.1	828.4*	37.5**	.0	3,488.0	17
Aspen/birch	54.4**	242.8**	.0	.0	297.2	48
Total, all groups	3,515.5	1,471.9	105.9	.0	5,093.3	9.2
Sampling error (percent)	15	28	74	-	9.2	
	Thousand acres					Percent
White/red pine	22.2**	7.4**	.0	.0	29.6	49
Spruce/fir	44.4*	14.9**	.0	.0	59.3	33
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	7.4**	.0	.0	7.4	100
Elm/ash/red maple	7.4**	.0	6.6**	.0	14.0	71
Northern hardwoods	133.0	44.5*	21.5**	.0	199.0	14
Aspen/birch	7.4**	37.1*	.0	.0	44.5	38
Total, all groups	214.4	111.3	28.1	.0	353.8	2.5
Sampling error (percent)	11	20	38	-	2.5	
	Green tons per acre[b]					
White/red pine	9.8	25.6	.0	.0	13.8	
Spruce/fir	12.5	4.2	.0	.0	10.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	20.1	.0	.0	20.1	
Elm/ash/red maple	8.6	.0	10.4	.0	9.5	
Northern hardwoods	19.7	18.6	1.7	.0	17.5	
Aspen/birch	7.4	6.5	.0	.0	6.7	
All groups	16.4	13.2	3.8	.0	14.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 57.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Windham County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,368.1*	.0	.0	.0	1,368.1	43
Spruce/fir	196.3**	.0	47.1**	.0	243.4	61
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	211.8**	.0	.0	.0	211.8	51
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	3,409.0	360.0**	220.7**	.0	3,989.7	17
Aspen/birch	22.3**	.0	.0	.0	22.3	81
Total, all groups	5,207.5	360.0	267.8	.0	5,835.3	13.1
Sampling error (percent)	15	57	64	-	13.1	
	Thousand acres					Percent
White/red pine	85.0*	.0	.0	.0	85.0	26
Spruce/fir	21.4**	.0	7.5**	.0	28.9	49
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	35.8*	7.4**	.0	.0	43.2	40
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	206.6	28.6**	14.3**	.0	249.5	11
Aspen/birch	14.4**	.0	.0	.0	14.4	69
Total, all groups	363.2	36.0	21.8	.0	421.0	1.2
Sampling error (percent)	5	43	57	-	1.2	
	Green tons per acre[b]					
White/red pine	16.1	.0	.0	.0	16.1	
Spruce/fir	9.2	.0	6.3	.0	8.4	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	5.9	.0	.0	.0	4.9	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	16.5	12.6	15.4	.0	16.0	
Aspen/birch	1.5	.0	.0	.0	1.5	
All groups	14.3	10.0	12.3	.0	13.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 58.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Windsor County, Vermont, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	4,374.3*	428.3**	248.5**	.0	5,051.1	27
Spruce/fir	589.9**	354.2**	.0	.0	944.1	52
Oak/pine	.0	83.6**	.0	.0	83.6	100
Oak/hickory	237.0**	.0	.0	.0	237.0	100
Elm/ash/red maple	98.3**	.0	.0	.0	98.3	100
Northern hardwoods	8,004.5	1,487.3*	.0	.0	9,491.8	13
Aspen/birch	123.6**	439.0**	.0	.0	562.6	52
Total, all groups	13,427.6	2,792.4	248.5	.0	16,468.5	7.8
Sampling error (percent)	11	28	73	-	7.8	
	Thousand acres					Percent
White/red pine	100.9*	7.0**	17.6**	.0	125.5	19
Spruce/fir	27.6*	7.0**	.0	.0	34.6	44
Oak/pine	.0	6.8**	.0	.0	6.8	100
Oak/hickory	7.0**	.0	.0	.0	7.0	100
Elm/ash/red maple	6.8**	.0	.0	.0	6.8	100
Northern hardwoods	236.7	48.6*	.0	.0	285.3	10
Aspen/birch	7.0**	20.9**	6.8**	.0	34.7	44
Total, all groups	386.0	90.3	24.4	.0	500.7	2.2
Sampling error (percent)	7	26	59	-	2.2	
	Green tons per acre[b]					
White/red pine	43.4	61.2	14.1	.0	40.2	
Spruce/fir	21.4	50.6	.0	.0	27.3	
Oak/pine	.0	12.3	.0	.0	12.3	
Oak/hickory	33.9	.0	.0	.0	33.9	
Elm/ash/red maple	14.5	.0	.0	.0	14.5	
Northern hardwoods	33.8	30.6	.0	.0	33.3	
Aspen/birch	17.7	21.0	.0	.0	16.2	
All groups	34.8	30.9	10.2	.0	32.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 59.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	38,065	7,005	553	45,623	13,854	59,477
Hardwoods	109,787	23,856	3,564	137,207	11,362	148,569
Total, all species	147,852	30,861	4,117	182,830	25,216	208,046
	Thousand green tons					
Softwoods	7,176.8	6,273.4	2,371.3	15,821.5	2,805.7	18,627.2
Hardwoods	23,091.7	22,340.8	12,178.2	57,610.7	3,591.9	61,202.6
Total, all species	30,268.5	28,614.2	14,549.5	73,432.2	6,397.6	79,829.8

Table 60.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Addison County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	951	18	0	969	321	1,290
Hardwoods	6,985	951	105	8,041	1,047	9,088
Total, all species	7,936	969	105	9,010	1,368	10,378
	Thousand green tons					
Softwoods	151.4	29.6	.0	181.0	44.5	225.5
Hardwoods	1,267.2	806.7	280.7	2,354.6	234.5	2,589.1
Total, all species	1,418.6	836.3	280.7	2,535.6	279.0	2,814.6

Table 61.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Bennington County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,743	140	0	1,883	33	1,916
Hardwoods	8,277	2,776	365	11,418	585	12,003
Total, all species	10,020	2,916	365	13,301	618	13,919
	Thousand green tons					
Softwoods	326.0	58.2	.0	384.2	4.0	388.2
Hardwoods	1,835.0	2,397.7	921.0	5,153.7	183.7	5,337.4
Total, all species	2,161.0	2,455.9	921.0	5,537.9	187.7	5,725.6

Table 62.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Caledonia County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,429	245	0	1,674	2,578	4,252
Hardwoods	2,163	794	113	3,070	1,456	4,526
Total, all species	3,592	1,039	113	4,744	4,034	8,778
	Thousand green tons					
Softwoods	211.0	215.8	.0	426.8	520.3	947.1
Hardwoods	428.3	984.2	484.2	1,896.7	622.4	2,519.1
Total, all species	639.3	1,200.0	484.2	2,323.5	1,142.7	3,466.2

Table 63.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Chittenden County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,259	266	0	1,525	32	1,557
Hardwoods	5,000	1,276	84	6,360	426	6,786
Total, all species	6,259	1,542	84	7,885	458	8,343
	Thousand green tons					
Softwoods	217.3	206.7	.0	424.0	2.9	426.9
Hardwoods	1,194.8	1,169.2	283.7	2,647.7	105.4	2,753.1
Total, all species	1,412.1	1,375.9	283.7	3,071.7	108.3	3,180.0

Table 64.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Essex County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	3,869	247	13	4,129	1,124	5,253
Hardwoods	10,594	1,847	282	12,723	641	13,364
Total, all species	14,463	2,094	295	16,852	1,765	18,617
	Thousand green tons					
Softwoods	735.3	185.2	29.8	950.3	330.0	1,280.3
Hardwoods	2,212.3	1,783.3	921.8	4,917.4	177.8	5,095.2
Total, all species	2,947.6	1,968.5	951.6	5,867.7	507.8	6,375.5

Table 65.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Franklin/Grand Isle Counties, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,734	449	46	2,229	1,136	3,365
Hardwoods	4,628	1,212	264	6,104	648	6,752
Total, all species	6,362	1,661	310	8,333	1,784	10,117
	Thousand green tons					
Softwoods	297.3	445.1	175.2	917.6	227.2	1,144.8
Hardwoods	917.3	1,347.7	880.7	3,145.7	330.7	3,476.4
Total, all species	1,214.6	1,792.8	1,055.9	4,063.3	557.9	4,621.2

Table 66.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Lamoille County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	3,212	210	17	3,439	508	3,947
Hardwoods	8,632	1,922	341	10,895	496	11,391
Total, all species	11,844	2,132	358	14,334	1,004	15,338
	Thousand green tons					
Softwoods	592.2	162.0	45.3	799.5	127.8	927.3
Hardwoods	1,660.6	2,191.5	1,210.9	5,063.0	188.4	5,251.4
Total, all species	2,252.8	2,353.5	1,256.2	5,862.5	316.2	6,178.7

Table 67.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Orange County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	3,111	394	57	3,562	767	4,329
Hardwoods	7,415	1,201	338	8,954	1,157	10,111
Total, all species	10,526	1,595	395	12,516	1,924	14,440
	Thousand green tons					
Softwoods	575.3	457.9	271.6	1,304.8	142.9	1,447.7
Hardwoods	1,434.8	1,376.4	1,865.6	4,676.8	373.6	5,050.4
Total, all species	2,010.1	1,834.3	2,137.2	5,981.6	516.5	6,498.1

Table 68.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Orleans County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	6,636	791	0	7,427	2,235	9,662
Hardwoods	9,960	1,712	226	11,898	805	12,703
Total, all species	16,596	2,503	226	19,325	3,040	22,365
	Thousand green tons					
Softwoods	977.8	587.4	.0	1,565.2	577.7	2,142.9
Hardwoods	1,963.6	1,540.8	803.2	4,307.6	245.8	4,553.4
Total, all species	2,941.4	2,128.2	803.2	5,872.8	823.5	6,696.3

Table 69.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Rutland County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	2,009	345	92	2,446	587	3,033
Hardwoods	10,904	2,231	404	13,539	932	14,471
Total, all species	12,913	2,576	496	15,985	1,519	17,504
	Thousand green tons					
Softwoods	378.8	275.5	287.1	941.4	62.1	1,003.5
Hardwoods	2,437.6	1,983.7	1,242.5	5,663.8	209.2	5,873.0
Total, all species	2,816.4	2,259.2	1,529.6	6,605.2	271.3	6,876.5

Table 70.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Washington County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	2,356	197	0	2,553	1,925	4,478
Hardwoods	4,776	893	182	5,851	1,285	7,136
Total, all species	7,132	1,090	182	8,404	3,210	11,614
	Thousand green tons					
Softwoods	437.6	154.7	.0	592.3	523.0	1,115.3
Hardwoods	1,194.8	1,157.1	925.2	3,277.1	700.9	3,978.0
Total, all species	1,632.4	1,311.8	925.2	3,869.4	1,223.9	5,093.3

Table 71.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Windham County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,284	428	172	1,884	1,944	3,828
Hardwoods	5,880	2,041	313	8,234	1,114	9,348
Total, all species	7,164	2,469	485	10,118	3,058	13,176
	Thousand green tons					
Softwoods	243.9	346.7	886.4	1,477.0	176.2	1,653.2
Hardwoods	1,251.1	1,848.0	965.8	4,064.9	117.2	4,182.1
Total, all species	1,495.0	2,194.7	1,852.2	5,541.9	293.4	5,835.3

Table 72.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Windsor County, Vermont, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	8,472	3,275	156	11,903	664	12,567
Hardwoods	24,573	5,000	547	30,120	770	30,890
Total, all species	33,045	8,275	703	42,023	1,434	43,457
	Thousand green tons					
Softwoods	2,032.9	3,148.6	675.9	5,857.4	67.1	5,924.5
Hardwoods	5,294.3	3,754.5	1,392.9	10,441.7	102.3	10,544.0
Total, all species	7,327.2	6,903.1	2,068.8	16,299.1	169.4	16,468.5

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Appendix

Definition of Terms

Aboveground tree biomass. The net green weight of wood and bark in trees aboveground.

Biomass. The quantity of material in organic matter measured in terms of its weight.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality such as hawthorn or sumac.

Cull trees. Rotten trees, that is, live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs and more than 50 percent of the cull volume is rotten; rough trees, that is, live trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) noncommercial species.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground on the uphill side of the tree.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species that form a plurality of the stocking (basal area of all live trees).

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in Vermont were combined into the following major forest-type groups (the descriptions apply to forests in Vermont).

a. White/red pine--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include sugar maple, red maple, red spruce, balsam fir, and paper birch.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make

up a plurality of the stocking; common associates include paper birch, red maple, aspen, white pine, hemlock, and sugar maple.

c. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; beech, red spruce, and sugar maple are associates.

d. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 75 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, sugar maple, and red maple.

e. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, aspen, and white ash.

f. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and basswood.

g. Aspen/birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, red spruce, white ash, and white pine.

Green weight. The weight of wood and bark as it would be if it had been recently cut, usually expressed in pounds or tons. Net green weight equals gross weight less deductions for all unsound (rotten) material.

Growing-stock trees. Live trees of commercial species classified as either sawtimber, poletimber, saplings, or seedlings; all live trees except cull trees. While saplings and seedlings are classified as growing-stock trees, by USDA Forest Service definition, they contain no volume.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches d.b.h. and larger from a 1-foot stump height to a minimum 4.0-inch top d.o.b. of the central stem, or to the point where the central stem breaks into limbs if that occurs before it reaches this minimum diameter. Net volume equals gross volume less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. For 4-foot sections, the mathematical formula is $(0.22D^2 - 0.71D)\ (0.904762)$; where D = diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), including the wood and bark.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nongrowing-stock biomass. The biomass in cull trees (including noncommercial tree species), salvable dead trees, saplings, stumps between ground level and a 1-foot stump height, and the tops of growing-stock trees.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs and more than 50 percent of the cull volume is rotten.

Rough trees. Live trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) noncommercial species.

Salvable dead trees. Trees at least 5.0 inches in d.b.h. that have recently died, but still have intact bark. The trees may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 inches through 4.9 inches d.b.h.

Sawlog portion. The part of the bole of a sawtimber tree between the stump and the point on the bole above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0-inch d.b.h. and at least 1 foot in height.

Softwoods. Coniferous trees, usually evergreen, with needles or scalelike leaves.

Stand-size class. A classification of forest land based on the size class of all live trees in the area.

a. Sawtimber stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; (2) half or more of the stocking is made up of poletimber trees, sawtimber trees, or both; and (3) the stocking of sawtimber is at least equal to that of poletimber.

b. Poletimber stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; (2) half or more of the stocking is made up of poletimber trees, sawtimber trees, or both; and (3) the stocking of poletimber exceeds that of sawtimber.

c. Sapling-seedling stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; and (2) half or more of the stocking is made up of saplings, seedlings, or both.

d. Nonstocked area--stands of timber on forest land where all live trees make up less than 10 percent of the minimum full stocking.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark. Excludes the stump-root system below the ground.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Top and branches. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches d.o.b. It includes the uppermost stem,

branches, and twigs of the tree but not the foliage.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches d.o.b., or to the point where the main stem or fork breaks into limbs.

Tree species of Vermont (as encountered on field plots)

Scientific Name[a]	Common Name(s)	Occurrence[b]
Softwoods		
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	r
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch	r
Picea glauca (Moench) Karst.	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	r
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. strobus L.	eastern white pine	vc
Thuja occidentalis L.	northern white-cedar	c
Tsuga canadensis (L.) Carr.	eastern hemlock	vc
Hardwoods		
Acer negundo L.	boxelder	vr
Acer pensylvanicum L.[c]	striped maple, moosewood	c
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	c
A. saccharum L.	sugar, rock, or hard maple	vc
Ailanthus altissima (Mill.) Swingle[c]	Ailanthus, tree-of-heaven	vr
Betula alleghaniensis Britton	yellow birch	vc
B. lenta L.	sweet, black, or cherry birch	c
B. papyrifera Marsh.	paper, white, or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carpinus caroliniana Walt.[c]	American hornbeam, blue beech	vr
Carya spp. Nutt.	hickory	c
Crataegus spp. L.[c]	hawthorn	vr
Fagus grandifolia Ehrh.	American beech	vc
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black ash, brown ash	r
F. pennsylvanica Marsh.	green ash, red ash	r
Gleditsia triacanthos L.	honeylocust	vr
Juglans cinera L.	butternut	r
Juglans nigra L.	black walnut	vr
Malus spp. Mill.[c]	apple	r
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam, ironwood	c
Populus balsamifera L.	balsam poplar	vr
P. deltoides Bartr. Marsh	eastern cottonwood	vr
P. grandidentata Michx.	bigtooth aspen, poplar, popple	r
P. tremuloides Michx.	quaking or trembling aspen	c
Prunus pensylvanica L.f.[c]	pin or fire cherry	r
Prunus serotina Ehrh.	black cherry	c
Quercus alba L.	white oak	r
Q. bicolor Willd.	swamp white oak	vr
Q. prinus L.	chestnut oak	vr
Q. rubra L.	northern red oak	c
Robinia pseudoacacia L.	black locust	vr
Tilia americana L.	American basswood	r
Ulmus americana L.	American elm	c
U. rubra Muhl.	slippery or red elm	r

[a]Names according to: Little, Elbert L., Jr. Checklist of United States Trees (native and naturalized). Agric. Handb. 541 Washington, DC: U.S Department of Agriculture, Forest Service; 1979. 375 p.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (_5.0%).

[c]Noncommercial species.

Conversions and Equivalents

1 acre = 4,046.86 square meters or 0.404686 hectares
1 board foot[a] = 0.00348 cubic meters or 3,480 cubic centimeters
1 cubic foot = 0.028317 cubic meters
1 cord (wood, bark, and airspace) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters or 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare
1 ton = 907.1848 kilograms
1,000 tons = 907.1848 metric tons

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[a]While 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate, using a conversion, will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (d.i.b.) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Since the board-foot unit is not a true measure of wood volume, and since products other than dimension lumber are becoming important, this unit may eventually be phased out and replaced with the cubic meter unit.

List of Available Biomass Tables

The following biomass tables are on microfiche. These tables are available at the state, geographic unit, and county level. Copies of fiche or photocopies of particular tables can be obtained by calling or writing

USDA Forest Service
Forest Inventory, Analysis, & Economics
370 Reed Road
Broomall, PA 19008
(215)461-3037

Table Number	Table description
9000	Softwood aboveground biomass by diameter class land stand-size class.
9001	Hardwood aboveground biomass by diameter class and stand-size class.
9010	Net weight (tons) of cull and salvable dead trees on timberland by component type of tree and softwoods/hardwoods.
9020	Net weight (tons) of all live trees on timberland by components and age class.
9030	Net weight (tons) of merchantable stem of growing stock trees on timberland by species and diameter class.
9050	Net weight (tons) of all live trees on timberland by forest type and stand-size class.
9051	Net weight (tons) of all live trees on timberland by forest-type group and stand size class.
9060	Net weight (tons) per acre of all live trees on timberland by forest type and stand-size classes.
9090	Net weight (tons) of cull and salvable dead trees on timberland by forest-type group and stand-size class.
9100	Net weight (tons) per acre of cull and salvable dead trees on timberland by forest-type group and stand-size class.
9120	Net weight (tons) of all live trees on timberland by timber management class and stand area class.

9130	Net weight (tons) per acre of all live trees on timberland by timber management and stand area classes.
9150	Net weight (tons) of all live trees on timberland by timber management class and forest-type group.
9160	Net weight (tons) of all trees on timberland by class of materials and softwoods and hardwoods.
9170	Net weight (tons) of all live trees on timberland by species and diameter class.
9171	Net weight (tons) of all live trees on timberland by species and diameter group.
9172	Net weight (tons) of cull and salvable dead trees 5"+ on timberland by species group and diameter group.
9180	Net weight (tons) of growing stock trees on timberland by species and diameter class .
9190	Net weight per acre of all live trees on timberland by timber management class and forest-type group.

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Frieswyk, Thomas S.; Malley, Anne M. Aboveground tree biomass statistics for Vermont - 1983. Resour. Bull. NE-91. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 105 p.

A statistical report on the fourth forest survey of Vermont (1983). Findings are displayed in 72 tables containing estimates of forest area, numbers of trees, tree biomass, and timber volume. Data is presented by state and county level.

ODC 536 (743)

Keywords: Forest survey, inventory, area, volume, biomass.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

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- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
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- Hamden, Connecticut, in cooperation with Yale University.
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- Orono, Maine, in cooperation with the University of Maine, Orono.
- Parsons, West Virginia.
- Princeton, West Virginia.
- Syracuse, New York, in cooperation with the State University of New York College of Environmental Sciences and Forestry at Syracuse University, Syracuse.
- University Park, Pennsylvania, in cooperation with the Pennsylvania State University.
- Warren, Pennsylvania.

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Biomass Statistics for New Hampshire - 1983

Thomas S. Frieswyk
Anne M. Malley

Abstract

A new measure of the forest resource has been added to the fourth forest inventory of New Hampshire. The inventory, which was conducted in 1982-83, included estimates of aboveground tree biomass on timberland. There are approximately 502 million green tons of wood and bark in the aboveground portion of all trees, or 104 green tons per acre. Fifty-five percent or 275 million green tons is in growing stock, and 45 percent or 227 million green tons is non-growing stock (growing-stock tops, saplings, cull trees, stumps and salvable dead trees).

Foreword

The fourth inventory of New Hampshire was under the overall direction of Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis Unit. John R. Peters assisted in the development and administration of the operating plan and had supervisory responsibility for the inventory process. Charles T. Scott was responsible for the design of the inventory and sample selection. David J. Alerich supervised the aerial-photo interpretation and data collection by the field crews. He was assisted by Thomas B. Hartman, Joseph G. Reddan, and Karen J. Sykes. Members of the field crews were:

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David R. Dickson and Thomas S. Frieswyk applied FINSYS (Forest INventory SYStem), a generalized data processing system, to the specific needs of the New Hampshire inventory and produced summary tables for the State, geographic sampling units, and counties. Thomas W. Birch and Thomas S. Frieswyk were instrumental in assuring that the area estimates were consistent with three previous inventories. Anne M. Malley assisted in various data processing capacities and prepared and balanced the tables in this report. Margaret Little, Carol McAfee, J. Roger Trettel, and Karen Sykes performed a variety of data editing and compilation tasks.

Robert L. Nevel, Jr., Richard H. Widmann, and Eric H. Wharton, with the assistance of Nicolas Engalichev, Cooperative Extension Service, University of New Hampshire, collected and compiled the data on timber products output and timber removals.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

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BIOMASS STATISTICS FOR NEW HAMPSHIRE – 1983

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Highlights

* There are approximately 502 million green tons of aboveground biomass in all trees. Over 97 percent or 489 million green tons is in live trees.

  * Two hundred and seventy–five million tons or 52 percent of the net green weight of all trees is in growing stock.

    * Two hundred and twenty–seven million tons or 45 percent of the net green weight of all trees is in nongrowing stock. Forty–five percent of the nongrowing stock is in growing–stock tops, 25 percent is in saplings, 21 percent is in rough and rotten cull trees and 9 percent is in stumps and salvable dead trees.

      * Sixty–one percent or 304 million green tons of the net aboveground biomass of all trees is in hardwoods.

        * Net aboveground biomass for all trees averages 104 green tons per acre in New Hampshire, and ranges from a low of 96 green tons per acre in Merrimack County to a high of 115 green tons per acre in Carroll County.

* Sawtimber stands contain 338.7 million green tons or 69 percent of aboveground biomass of all live trees.

* The northern hardwoods forest–type group contains the largest amount of aboveground tree biomass (204 million green tons), but the white/red pine group is more concentrated (109.6 green tons per acre of timberland).

* White pine is the leading species in terms of aboveground biomass as well as in cubic foot volume. It accounts for 18 percent of the aboveground biomass of all live trees. Red maple is the leading hardwood species and accounts for 15 percent of the aboveground biomass.

* Cull and salvable dead trees average 13.1 green tons per acre of timberland, and range from a low of 8.2 green tons per acre in Rockingham County to a high of 18.4 green tons per acre in Sullivan County.

Introduction

The USDA Forest Service completed the fourth inventory of New Hampshire's forest resources in 1983. Previous inventories were conducted in 1948, 1960, and 1973.

The inventories are conducted under the authority of the McSweeney-McNary Forest Research Act of 1928 and subsequent acts including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978.

The biomass, area, and volume statistics presented in this report are a summary of information collected on new field plots established during the fourth inventory. The new plot sample consisted of 697 ground plots randomly selected from 15,950 photo points classified by land use and cubic-foot volume class.

Data were collected, processed, and analyzed by the Forest Inventory and Analysis staff. A complete list of available biomass tables is included in the appendix of this report. These tables are available on microfiche by state, geographic unit (Fig. 1) and county levels. Other tables or additional information not presented in this report may be developed. For further information, contact the Forest Inventory, Analysis, and Economics Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037).

Background

Traditionally, forest resource data have been collected to describe the forest in terms of its timber production capabilities. Board- and cubic-foot measures of volume (Fig. 2) were and are adequate for that purpose. Today, timber production is still considered by many to be the primary use of forest land, however, many data users are also interested in how the resource can be used for energy production, fiber-based products, wildlife or recreation.

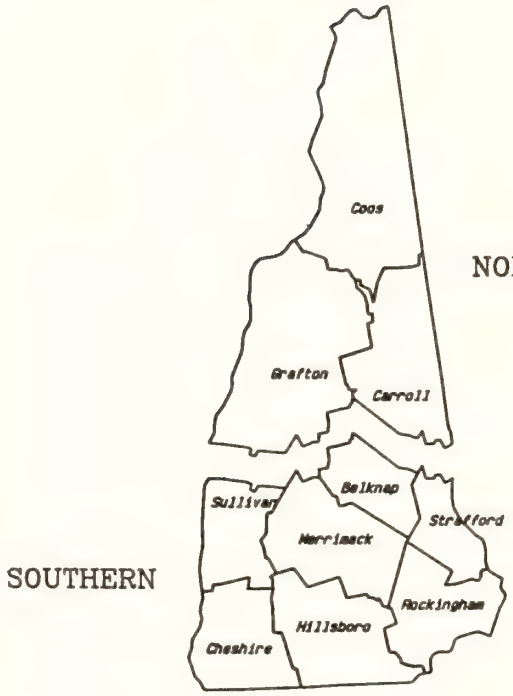


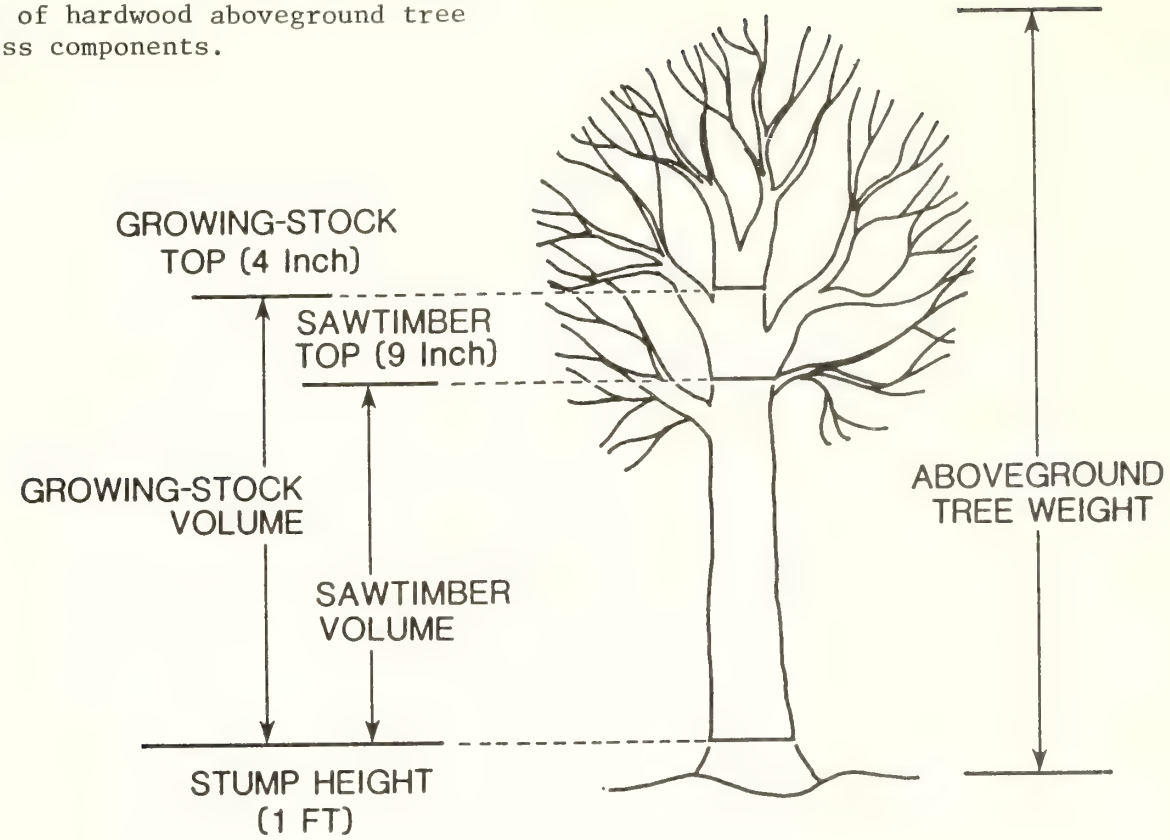
Figure 1.--Geographic Units.

Because board-foot and cubic-foot volume estimates do not describe the forest resource broadly enough, biomass estimates have been built into the standard Forest Service inventory procedure (Fig. 2).

Weight equations developed for the major tree species in Maine (Young et al. 1980) were included along with the conventional volume equations used during the compilation of statewide statistics. The weight equations provide an estimate of the above-stump biomass of all trees. Separate techniques had to be used to derive estimates for specific components of trees such as stump biomass (ground level to a 1-foot stump height), merchantable stem biomass (1-foot stump height to a 4-inch top diameter outside bark (d.o.b.) and tops and branches.

Determination of stump biomass involved a two step process. First, the volume in stumps was estimated using regression equations in which diameter at breast

Figure 2.--Volume and weight relationships of hardwood aboveground tree biomass components.



height (d.b.h.) was the independent variable (Raile 1982). Then the volumes were converted to weight using species-specifc weight/volume ratios (Markwardt 1930).

The weight of the merchantable stem was calculated by applying weight/volume ratios to estimates of volume. Timber volume was estimated from new equations for both sawtimber and growing stock (Scott 1979, 1981). The difference between above-stump biomass from the weight regression equations and the independent estimate of merchantable stem biomass was the estimate for tops and branches.

Estimates of area, volume, numbers of trees, and above-ground tree biomass have been summarized in this report. The statistics are presented by forest-type group, species or species group, and diameter group; all estimates are provided at the state and county level.

Reliability of Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout New Hampshire. However, because the field crews did not measure every tree nor examine every acre in the state, the data are estimates. Therefore, zeros in any table cell indicate that (1) the condition did not appear in the sample, or that the amount encountered was negligible. They do not necessarily mean that the condition does not exist.

There are two important sources of error to consider when looking at the estimates provided in this report: (1) the error associated with estimation from sample plots, and (2) the error associated with combining independent estimates. Some of the errors associated with estimation from sample plots are included in the tables, and are shown as a percentage of the total. We are not able to calculate a value for the error

associated with combined independent estimates.

Briefly, here is an example of how the sampling error is used to indicate reliability. The estimate of aboveground biomass of all trees on timberland in New Hampshire is 502 million green tons. It has an associated sampling error of 1.6 percent, or 8 million green tons. This means that if the survey were repeated, the odds are 2 to 1 (66 percent probability) that the estimate would be between 494 and 510 million green tons (502 $\pm$ 8). Similarly, the odds are 19 to 1 (95 percent probability) that the estimate would be within $\pm$ 16 million green tons.

State estimates have the smallest sampling errors and therefore are the most reliable. Geographic unit estimates are the next most reliable followed by county estimates. For example, the sampling error for aboveground tree biomass at for New Hampshire is 1.6 percent, while the sampling error for Rockingham County is 6.4 percent. County estimates are expected to be considerably less reliable than state estimates. The state estimates are based on a larger sample than county estimates, and as the sample size used to obtain the estimate decreases in relation to the population size, the sampling error is expected to increase.

Some of the estimates have sampling errors that are greater than 25 percent and may not be reliable. A single and double asterisk have been used to denote errors that exceed 25 and 50 percent, respectively. Any estimate with a sampling error of 50 percent or more would not be significantly different from zero, and those estimates with errors between 25 and 50 percent are suspect. Therefore, any estimates that have errors exceeding 25 percent should be used with caution.

The second important source of error occurs when two independent estimates are used to derive a third estimate. The biomass in tops and branches has been derived in this manner. The estimate of the merchantable stem biomass was subtracted from the estimate of total above-stump biomass to yield an estimate of the biomass in tops and branches. Consequently, the estimates of tops and branches should be used with caution.

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The tables are divided into three sections: (1) net volume and aboveground biomass of all trees, (2) net aboveground biomass of all live trees and (3) net aboveground biomass of cull and salvable dead trees.

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ABOVEGROUND BIOMASS
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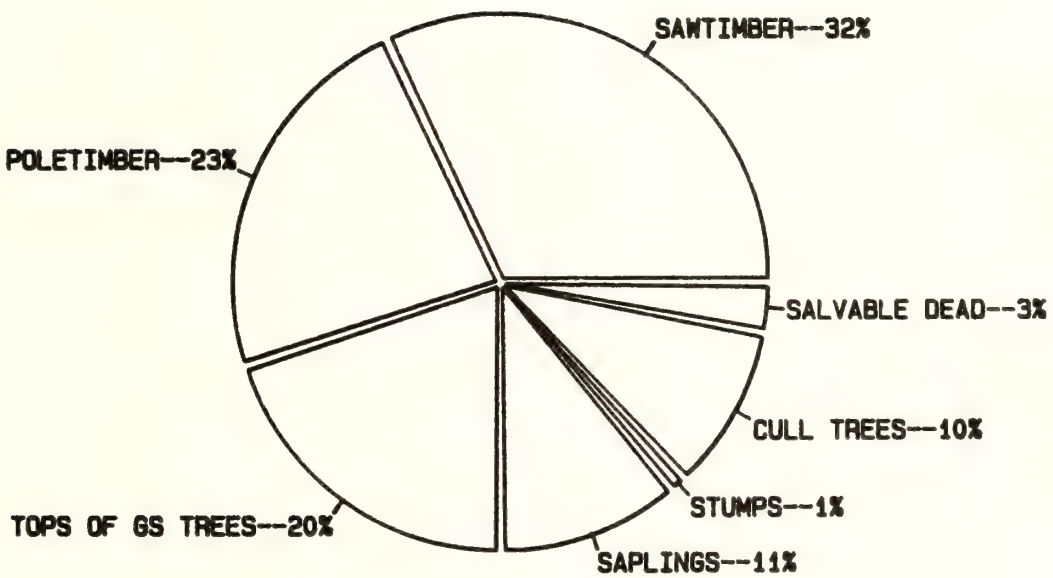


CLASS OF MATERIAL

Table 1.--Net volume of sawtimber, growing stock, and aboveground tree biomass of all trees on timberland, by county and species group, New Hampshire, 1983

County	Species group		All species
	Softwoods	Hardwoods	
	SAWTIMBER[a] Million board feet		
Belknap	439.3	334.2	773.5
Carroll	1,156.5	1,459.6	2,616.1
Cheshire	651.3	774.6	1,425.9
Coos	1,630.3	1,436.4	3,066.7
Grafton	1,351.7	2,150.2	3,501.9
Hillsboro	1,417.8	591.7	2,009.5
Merrimack	955.8	643.1	1,598.9
Rockingham	1,021.9	388.1	1,410.0
Strafford	385.0	349.0	734.0
Sullivan	499.0	400.7	899.7
All counties	9,508.6	8,527.6	18,036.2
	GROWING STOCK[b] Million cubic feet		
Belknap	140.8	201.1	341.9
Carroll	378.7	625.8	1,004.5
Cheshire	214.2	423.6	637.8
Coos	801.7	836.3	1,638.0
Grafton	541.6	1,099.5	1,641.1
Hillsboro	439.0	342.5	781.5
Merrimack	315.7	407.1	722.8
Rockingham	312.2	228.2	540.4
Strafford	120.5	182.2	302.7
Sullivan	183.3	225.8	409.1
All counties	3,447.7	4,572.1	8,019.8
	ABOVEGROUND TREE BIOMASS[c] Thousand green tons		
Belknap	8,130.5	14,098.5	22,229.0
Carroll	20,921.9	39,451.3	60,373.2
Cheshire	13,117.3	28,232.7	41,350.0
Coos	44,266.3	56,663.6	100,929.9
Grafton	33,625.5	68,490.7	102,116.2
Hillsboro	23,767.9	24,115.0	47,882.9
Merrimack	18,882.0	28,339.4	47,221.4
Rockingham	17,430.7	14,870.1	32,300.8
Strafford	6,854.1	12,176.2	19,030.3
Sullivan	11,079.3	17,519.3	28,598.6
All counties	198,075.5	303,956.8	502,032.3

[a]Net volume in board feet, by International 1/4-inch rule, of live trees of commercial species at least 9.0 inches d.b.h. (diameter breast height) for softwoods or 11.0 inches d.b.h. for hardwoods, between a 1-foot stump height and a minimum sawlog top of 7.0 inches d.o.b. (diameter outside bark) for softwoods or 9.0 inches d.o.b. for hardwoods, or until the point on the main stem above which a sawlog cannot be produced.

[b]Net volume, in cubic feet, of live trees of commercial species at least 5.0 inches d.b.h. between a 1-foot stump height and a minimum top of 4.0 inches d.o.b., or to the point where the main stem breaks into limbs.

[c]Net biomass, in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch d.b.h., above the ground level (excluding foliage).

Table 2.--Area of timberland, net aboveground tree biomass of all trees on timberland, and net aboveground tree biomass per acre of timberland, by county, New Hampshire, 1983

County	Timberland area	Total aboveground tree biomass[a]	Total aboveground tree biomass per unit area
	Thousand acres	Thousand green tons	Green tons per acre
Belknap	217.3	22,229.0	102.3
Carroll	525.8	60,373.2	114.8
Cheshire	396.6	41,350.0	104.3
Coos	1,021.5	100,929.9	98.8
Grafton	942.9	102,116.2	108.3
Hillsboro	418.2	47,882.9	114.5
Merrimack	492.0	47,221.4	96.0
Rockingham	319.9	32,300.8	101.0
Strafford	185.6	19,030.3	102.5
Sullivan	292.3	28,598.6	97.8
All counties	4,812.1	502,032.3	104.3

[a]Net biomass in green tons, of all trees (commercial species, noncommercial species, cull trees, and salvable dead trees) at least 1.0 inch d.b.h. above the ground level (excluding foliage).

Table 3.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	74,365.5	61,163.4	135,528.9	3
Upper stem	9,266.0	15,231.4	24,497.4	3
Total	83,631.5	76,394.8	160,026.3	3
Poletimber trees	30,287.7	84,311.4	114,599.1	2
All growing stock	113,919.2	160,706.2	274,625.4	2
Rough cull trees[b]	7,933.0	12,975.0	20,908.0	6
Rotten cull trees[b]	1,999.8	12,756.6	14,756.4	5
Salvable dead trees[c]	7,723.3	5,202.5	12,925.8	8
Saplings[d]	19,845.3	37,712.7	57,558.0	5
Stumps[e]	2,299.2	4,501.4	6,800.6	2
Tops - growing stock	40,771.6	60,666.9	101,438.5	2
Tops - rough and rotten	3,584.1	9,435.5	13,019.6	4
All nongrowing stock	84,156.3	143,250.6	227,406.9	2
All classes	198,075.5	303,956.8	502,032.3	1.6
Sampling error (percent)	3.9	2.5	1.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 4.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Belknap County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,798.0	2,418.8	6,216.8	14
Upper stem	436.0	633.8	1,069.8	10
Total	4,234.0	3,052.6	7,286.6	13
Poletimber trees	1,031.1*	4,272.8	5,303.9	8
All growing stock	5,265.1	7,325.4	12,590.5	8
Rough cull trees[b]	289.6*	355.1*	644.7	20
Rotten cull trees[b]	22.4**	692.9*	715.3	25
Salvable dead trees[c]	79.2**	85.6**	164.8	40
Saplings[d]	472.3*	2,236.4	2,708.7	14
Stumps[e]	92.2	209.0	301.2	8
Tops - growing stock	1,789.5	2,811.6	4,601.1	7
Tops - rough and rotten	120.2*	382.5	502.7	14
All nongrowing stock	2,865.4	6,773.1	9,638.5	6
All classes	8,130.5	14,098.5	22,229.0	5.7
Sampling error (percent)	20	9	5.7	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 5.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Carroll County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	8,716.2	10,258.9	18,975.1	8
Upper stem	1,052.1	2,369.5	3,421.6	7
Total	9,768.3	12,628.4	22,396.7	8
Poletimber trees	2,703.6	9,336.5	12,040.1	7
All growing stock	12,471.9	21,964.9	34,436.8	5
Rough cull trees[b]	897.2*	1,137.9	2,035.1	20
Rotten cull trees[b]	166.1*	1,751.6	1,917.7	14
Salvable dead trees[c]	492.8*	570.9*	1,063.7	21
Saplings[d]	1,929.9	4,431.0	6,360.9	14
Stumps[e]	252.8	581.6	834.4	5
Tops - growing stock	4,380.8	8,012.0	12,392.8	5
Tops - rough and rotten	330.4*	1,001.4	1,331.8	11
All nongrowing stock	8,450.0	17,486.4	25,936.4	5
All classes	20,921.9	39,451.3	60,373.2	4.4
Sampling error (percent)	12	7	4.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 6.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Cheshire County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	5,608.4	5,428.9	11,037.3	9
Upper stem	663.6	1,364.6	2,028.2	8
Total	6,272.0	6,793.5	13,065.5	9
Poletimber trees	1,579.9	8,157.6	9,737.5	7
All growing stock	7,851.9	14,951.1	22,803.0	6
Rough cull trees[b]	736.0*	1,061.7	1,797.7	16
Rotten cull trees[b]	251.6*	1,331.9	1,583.5	12
Salvable dead trees[c]	180.3**	111.1*	291.4	38
Saplings[d]	911.7*	3,779.1	4,690.8	19
Stumps[e]	142.9	437.7	580.6	5
Tops - growing stock	2,669.9	5,651.2	8,321.1	5
Tops - rough and rotten	373.0	908.9	1,281.9	10
All nongrowing stock	5,265.4	13,281.6	18,547.0	5
All classes	13,117.3	28,232.7	41,350.0	4.5
Sampling error (percent)	13	7	4.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 7.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Coos County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	10,176.6	10,453.6	20,630.2	7
Upper stem	1,540.8	2,675.9	4,216.7	7
Total	11,717.4	13,129.5	24,846.9	7
Poletimber trees	10,191.7	15,537.5	25,729.2	5
All growing stock	21,909.1	28,667.0	50,576.1	5
Rough cull trees[b]	1,260.0*	2,678.5	3,938.5	14
Rotten cull trees[b]	423.0	2,838.2	3,261.2	10
Salvable dead trees[c]	3,059.6	1,592.5	4,652.1	14
Saplings[d]	7,649.6	7,089.8	14,739.4	11
Stumps[e]	559.2	826.7	1,385.9	4
Tops - growing stock	8,746.8	10,903.3	19,650.1	4
Tops - rough and rotten	659.0	2,067.6	2,726.6	9
All nongrowing stock	22,357.2	27,996.6	50,353.8	4
All classes	44,266.3	56,663.6	100,929.9	4.0
Sampling error (percent)	9	6	4.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 8.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Grafton County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	9,848.9	15,290.1	25,139.0	8
Upper stem	1,260.3	3,743.8	5,004.1	8
Total	11,109.2	19,033.9	30,143.1	8
Poletimber trees	6,015.2	18,771.5	24,786.7	6
All growing stock	17,124.4	37,805.4	54,929.8	5
Rough cull trees[b]	1,421.0*	2,607.7	4,028.7	15
Rotten cull trees[b]	202.7*	2,475.3	2,678.0	15
Salvable dead trees[c]	2,867.9	1,931.6	4,799.5	15
Saplings[d]	4,748.4	6,837.5	11,585.9	13
Stumps[e]	380.6	977.5	1,358.1	5
Tops - growing stock	6,356.3	14,117.8	20,474.1	5
Tops - rough and rotten	524.2	1,737.9	2,262.1	11
All nongrowing stock	16,501.1	30,685.3	47,186.4	4
All classes	33,625.5	68,490.7	102,116.2	3.8
Sampling error (percent)	10	7	3.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 9.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Hillsboro County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	11,848.7	4,390.6	16,239.3	10
Upper stem	1,402.7	1,093.5	2,496.2	8
Total	13,251.4	5,484.1	18,735.5	9
Poletimber trees	2,424.9	6,989.8	9,414.7	7
All growing stock	15,676.3	12,473.9	28,150.2	7
Rough cull trees[b]	678.6	1,310.2	1,988.8	13
Rotten cull trees[b]	424.1	1,012.9	1,437.0	18
Salvable dead trees[c]	276.9*	86.1*	363.0	28
Saplings[d]	750.5*	3,251.5	4,002.0	18
Stumps[e]	250.0	372.7	622.7	6
Tops - growing stock	5,277.8	4,732.6	10,010.4	6
Tops - rough and rotten	433.7	875.1	1,308.8	11
All nongrowing stock	8,091.6	11,641.1	19,732.7	6
All classes	23,767.9	24,115.0	47,882.9	5.4
Sampling error (percent)	11	8	5.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 10.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Merrimack County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	8,055.0	4,783.1	12,838.1	9
Upper stem	968.7	1,258.7	2,227.4	7
Total	9,023.7	6,041.8	15,065.5	8
Poletimber trees	2,287.0	8,557.5	10,844.5	7
All growing stock	11,310.7	14,599.3	25,910.0	6
Rough cull trees[b]	901.9	1,123.4	2,025.3	15
Rotten cull trees[b]	170.3*	836.1	1,006.4	16
Salvable dead trees[c]	404.1*	371.8*	775.9	19
Saplings[d]	1,560.3	4,576.0	6,136.3	14
Stumps[e]	210.5	401.0	611.5	5
Tops - growing stock	3,922.0	5,664.5	9,586.5	6
Tops - rough and rotten	402.2	767.3	1,169.5	12
All nongrowing stock	7,571.3	13,740.1	21,311.4	5
All classes	18,882.0	28,339.4	47,221.4	4.6
Sampling error (percent)	11	7	4.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 11.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Rockingham County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	8,763.6	2,782.6	11,546.2	11
Upper stem	1,039.7	732.4	1,772.1	8
Total	9,803.3	3,515.0	13,318.3	10
Poletimber trees	1,577.7	4,730.8	6,308.5	11
All growing stock	11,381.0	8,245.8	19,626.8	7
Rough cull trees[b]	594.9	677.9	1,272.8	15
Rotten cull trees[b]	159.7*	159.1*	318.8	24
Salvable dead trees[c]	173.6*	152.7*	326.3	29
Saplings[d]	843.8*	1,894.4	2,738.2	19
Stumps[e]	191.4	235.3	426.7	6
Tops - growing stock	3,798.6	3,172.7	6,971.3	7
Tops - rough and rotten	287.7	332.2	619.9	11
All nongrowing stock	6,049.7	6,624.3	12,674.0	7
All classes	17,430.7	14,870.1	32,300.8	6.4
Sampling error (percent)	14	10	6.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

[e]Of all trees 5.0 inches d.b.h. and larger.

Table 12.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Strafford County, New Hampshire, 1983

Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	3,261.8	2,547.3	5,809.1	11
Upper stem	380.0	637.6	1,017.6	11
Total	3,641.8	3,184.9	6,826.7	11
Poletimber trees	806.7	3,493.2	4,299.9	11
All growing stock	4,448.5	6,678.1	11,126.6	7
Rough cull trees[b]	184.1	866.5	1,050.6	13
Rotten cull trees[b]	57.9	330.9	388.8	22
Salvable dead trees[c]	14.8	60.2	75.0	50
Saplings[d]	457.5	1,046.7	1,504.2	24
Stumps[e]	75.5	192.2	267.7	7
Tops - growing stock	1,517.0	2,500.4	4,017.4	7
Tops - rough and rotten	98.8	501.2	600.0	10
All nongrowing stock	2,405.6	5,498.1	7,903.7	5
All classes	6,854.1	12,176.2	19,030.3	4.9
Sampling error (percent)	15	9	4.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.

[c]Includes entire tree above a 1-foot stump height.

[d]Includes entire tree above the ground.

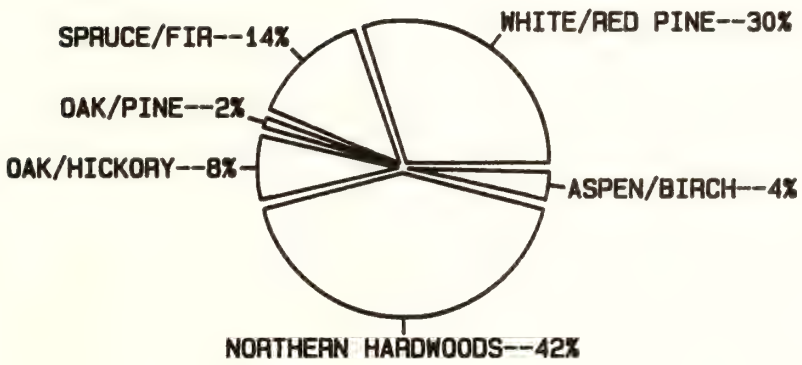
[e]Of all trees 5.0 inches d.b.h. and larger.

Table 13.--Net aboveground tree biomass of all trees on timberland, by class of material and species group, Sullivan County, New Hampshire, 1983

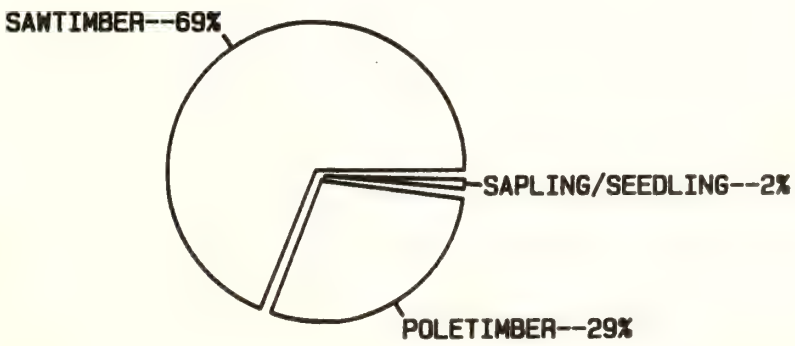
Class of material	Species group		All species	Sampling error[a]
	Softwoods	Hardwoods		
	Thousand green tons			Percent
Sawtimber trees:				
Sawlog portion	4,288.3	2,809.5	7,097.8	12
Upper stem	522.1	721.6	1,243.7	11
Total	4,810.4	3,531.1	8,341.5	12
Poletimber trees	1,669.9	4,464.2	6,134.1	8
All growing stock	6,480.3	7,995.3	14,475.6	8
Rough cull trees[b]	969.7*	1,156.1	2,125.8	23
Rotten cull trees[b]	122.0*	1,327.7	1,449.7	19
Salvable dead trees[c]	174.1*	240.0*	414.1	35
Saplings[d]	521.3*	2,570.3	3,091.6	20
Stumps[e]	144.1	267.7	411.8	6
Tops - growing stock	2,312.9	3,100.8	5,413.7	7
Tops - rough and rotten	354.9*	861.4	1,216.3	12
All nongrowing stock	4,599.0	9,524.0	14,123.0	6
All classes	11,079.3	17,519.3	28,598.6	5.5
Sampling error (percent)	14	8	5.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.
[b]Main stem portion of trees 5.0 inches d.b.h. and larger between a 1-foot stump height and a 4-inch top d.o.b.
[c]Includes entire tree above a 1-foot stump height.
[d]Includes entire tree above the ground.
[e]Of all trees 5.0 inches d.b.h. and larger.

ABOVEGROUND BIOMASS
of ALL LIVE TREES



FOREST-TYPE GROUP



STANDSIZE CLASS

Table 14.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	128,598.3	15,558.2	4,442.2*	.0	148,598.7	7
Spruce/fir	37,924.3	27,367.4	1,200.6**	.0	66,492.3	11
Hard pine	1,040.8**	937.8**	292.6**	.0	2,271.2	54
Oak/pine	5,919.5*	2,275.9**	162.8**	.0	8,358.2	31
Oak/hickory	20,520.8	15,931.9	479.5**	.0	36,932.2	14
Elm/ash/red maple	206.9**	91.7**	73.9**	.0	372.5	63
Northern hardwoods	137,823.1	63,319.9	2,868.5*	.0	204,011.5	5
Aspen/birch	6,686.6*	14,068.0*	1,068.7**	.0	21,823.3	22
Total, all groups	338,720.3	139,550.8	10,588.8	.0	488,859.9	1.6
Sampling error (percent)	3.5	6.7	18.9	-	1.6	
	Thousand acres					Percent
White/red pine	1,067.3	185.4	103.3*	.0	1,356.0	6
Spruce/fir	326.0	311.8	39.8*	.0	677.6	10
Hard pine	9.4**	16.7**	15.6**	.0	41.7	44
Oak/pine	56.0*	36.6*	7.3**	.0	99.9	28
Oak/hickory	202.3	183.1	9.8**	.0	395.2	13
Elm/ash/red maple	8.1**	6.7**	17.5**	.0	32.3	47
Northern hardwoods	1,216.2	681.3	106.1*	.0	2,003.6	5
Aspen/birch	48.2*	132.6*	25.0**	.0	205.8	20
Total, all groups	2,933.5	1,554.2	324.4	.0	4,812.1	.8
Sampling error (percent)	3.3	6.1	14.9	-	.8	
	Green tons per acre[b]					
White/red pine	120.5	83.9	43.0	.0	109.6	
Spruce/fir	116.3	87.8	30.2	.0	98.1	
Hard pine	110.7	56.2	18.8	.0	54.5	
Oak/pine	105.7	62.2	22.3	.0	83.7	
Oak/hickory	101.4	87.0	48.9	.0	93.5	
Elm/ash/red maple	25.5	13.7	4.2	.0	11.5	
Northern hardwoods	113.3	92.9	27.0	.0	101.8	
Aspen/birch	138.7	106.1	42.7	.0	106.0	
All groups	115.5	89.8	32.6	.0	101.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 15.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Belknap County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	8,068.3*	906.5**	.0	.0	8,974.8	27
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	923.1**	851.6**	.0	.0	1,774.7	71
Oak/hickory	2,636.1**	219.0**	.0	.0	2,855.1	47
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,427.0*	2,844.4**	229.6**	.0	7,501.0	29
Aspen/birch	.0	862.9**	92.0**	.0	954.9	91
Total, all groups	16,054.5	5,684.4	321.6	.0	22,060.5	5.7
Sampling error (percent)	14	31	77	-	5.7	
	Thousand acres					Percent
White/red pine	65.3*	14.1**	.0	.0	79.4	26
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	7.1**	7.0**	.0	.0	14.1	71
Oak/hickory	28.7*	7.6**	.0	.0	36.3	41
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	36.0*	29.3*	7.0**	.0	72.3	27
Aspen/birch	.0	7.6**	7.6**	.0	15.2	71
Total, all groups	137.1	65.6	14.6	.0	217.3	1.6
Sampling error (percent)	14	29	71	-	1.6	
	Green tons per acre[b]					
White/red pine	123.6	64.3	.0	.0	113.0	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	130.0	121.7	.0	.0	125.9	
Oak/hickory	91.9	28.8	.0	.0	78.7	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	123.0	97.1	32.8	.0	103.7	
Aspen/birch	.0	113.5	12.1	.0	62.8	
All groups	117.1	86.7	22.0	.0	101.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 16.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Carroll County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	15,225.7*	3,135.8*	.0	.0	18,361.5	22
Spruce/fir	2,876.5**	.0	.0	.0	2,876.5	75
Hard pine	1,040.8**	587.8**	134.3**	.0	1,762.9	66
Oak/pine	977.6**	.0	.0	.0	977.6	100
Oak/hickory	1,437.0**	805.9**	.0	.0	2,242.9	58
Elm/ash/red maple	206.9**	.0	.0	.0	206.9	100
Northern hardwoods	29,078.2	3,623.1*	159.7**	.0	32,861.0	14
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	50,842.7	8,152.6	294.0	.0	59,289.3	4.3
Sampling error (percent)	8	29	62	-	4.3	
	Thousand acres					Percent
White/red pine	124.3	37.7*	.0	.0	162.0	20
Spruce/fir	19.0**	.0	.0	.0	19.0	71
Hard pine	9.3**	9.3**	8.4**	.0	27.0	57
Oak/pine	9.7**	.0	.0	.0	9.7	100
Oak/hickory	19.4**	8.4**	.0	.0	27.8	57
Elm/ash/red maple	8.2**	.0	.0	.0	8.2	100
Northern hardwoods	225.7	38.1*	8.3**	.0	272.1	13
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	415.6	93.5	16.7	.0	525.8	2.3
Sampling error (percent)	7	28	62	-	2.3	
	Green tons per acre[b]					
White/red pine	122.5	83.2	.0	.0	113.3	
Spruce/fir	151.4	.0	.0	.0	151.4	
Hard pine	111.9	63.2	16.0	.0	65.3	
Oak/pine	100.8	.0	.0	.0	100.8	
Oak/hickory	74.1	95.9	.0	.0	80.7	
Elm/ash/red maple	25.2	.0	.0	.0	25.2	
Northern hardwoods	128.8	95.1	19.2	.0	120.8	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	122.3	87.2	17.6	.0	112.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 17.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Cheshire County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	10,078.5*	1,575.1**	1,143.8**	.0	12,797.4	22
Spruce/fir	.0	412.1**	.0	.0	412.1	100
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	864.0**	123.3**	.0	.0	987.3	88
Oak/hickory	4,285.7*	2,241.3**	.0	.0	6,527.0	34
Elm/ash/red maple	.0	91.7**	.0	.0	91.7	100
Northern hardwoods	12,650.6	7,366.7*	219.4**	.0	20,236.7	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	27,878.8	11,810.2	1,363.2	.0	41,052.2	4.4
Sampling error (percent)	11	21	64	-	4.4	
	Thousand acres					Percent
White/red pine	93.5	14.4**	14.5**	.0	122.4	20
Spruce/fir	.0	6.8**	.0	.0	6.8	100
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	6.9**	8.0**	.0	.0	14.9	71
Oak/hickory	36.1*	21.9**	.0	.0	58.0	33
Elm/ash/red maple	.0	6.7**	.0	.0	6.7	100
Northern hardwoods	108.5	72.6*	6.7**	.0	187.8	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	245.0	130.4	21.2	.0	396.6	3.5
Sampling error (percent)	11	20	58	-	3.5	
	Green tons per acre[b]					
White/red pine	107.8	109.4	78.9	.0	104.6	
Spruce/fir	.0	60.6	.0	.0	60.6	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	125.2	15.4	.0	.0	66.3	
Oak/hickory	118.7	102.3	.0	.0	112.5	
Elm/ash/red maple	.0	13.7	.0	.0	13.7	
Northern hardwoods	116.6	101.5	32.7	.0	107.8	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	113.8	90.6	64.3	.0	103.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 18.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Coos County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	254.0**	.0	254.0	100
Spruce/fir	26,549.5	19,179.0	783.2**	.0	46,511.7	12
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	26,887.5	11,131.4*	741.2**	.0	38,760.1	13
Aspen/birch	2,345.5**	7,770.6*	547.9**	.0	10,664.0	31
Total, all groups	55,782.5	38,081.0	2,326.3	.0	96,189.8	4.0
Sampling error (percent)	10	13	36	-	4.0	
	Thousand acres					Percent
White/red pine	.0	.0	9.7**	.0	9.7	100
Spruce/fir	219.7	222.7	29.0**	.0	471.4	11
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	8.5**	.0	8.5	100
Northern hardwoods	271.9	136.6	29.4**	.0	437.9	11
Aspen/birch	17.8**	66.1*	10.1**	.0	94.0	30
Total, all groups	509.4	425.4	86.7	.0	1,021.5	1.2
Sampling error (percent)	9	12	30	-	1.2	
	Green tons per acre[b]					
White/red pine	.0	.0	26.2	.0	26.2	
Spruce/fir	120.8	86.1	27.0	.0	98.7	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	98.9	81.5	25.2	.0	88.5	
Aspen/birch	131.8	117.6	54.2	.0	113.4	
All groups	109.5	89.5	26.8	.0	94.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 19.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Grafton County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	12,809.5	2,333.1	659.3	.0	15,801.9	24
Spruce/fir	7,012.7	6,852.3	417.4	.0	14,282.4	25
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	1,106.6	.0	.0	.0	1,106.6	100
Oak/hickory	1,067.9	3,150.6	479.5	.0	4,698.0	46
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	31,992.3	20,781.8	1,151.6	.0	53,925.7	11
Aspen/birch	4,341.1	3,080.7	.0	.0	7,421.8	42
Total, all groups	58,330.1	36,198.5	2,707.8	.0	97,236.4	3.8
Sampling error (percent)	10	14	41	-	3.8	
	Thousand acres					Percent
White/red pine	122.0*	29.7**	16.9**	.0	168.6	23
Spruce/fir	72.6*	70.3*	10.8**	.0	153.7	204
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	10.7**	.0	.0	.0	10.7	100
Oak/hickory	9.8**	30.4**	9.8**	.0	50.0	44
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	269.4	201.8	28.9**	.0	500.1	10
Aspen/birch	30.4**	29.4**	.0	.0	59.8	40
Total, all groups	514.9	361.6	66.4	.0	942.9	2.1
Sampling error (percent)	10	13	38	-	2.1	
	Green tons per acre[b]					
White/red pine	105.0	78.6	39.0	.0	93.7	
Spruce/fir	96.6	97.5	38.6	.0	92.9	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	103.4	.0	.0	.0	103.4	
Oak/hickory	109.0	103.6	48.9	.0	94.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	118.8	103.0	39.8	.0	107.8	
Aspen/birch	142.8	104.8	.0	.0	124.1	
All groups	113.3	100.1	40.8	.0	103.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 20.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Hillsboro County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	28,350.1	1,840.0**	194.6**	.0	30,384.7	13
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	774.0**	.0	.0	.0	774.0	100
Oak/hickory	1,550.9**	4,849.9*	.0	.0	6,400.8	29
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	8,700.8*	1,251.4**	.0	.0	9,952.2	27
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	39,375.8	7,941.3	194.6	.0	47,511.7	5.4
Sampling error (percent)	9	23	100	-	5.4	
	Thousand acres					Percent
White/red pine	212.5	28.2*	7.1**	.0	247.8	11
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	7.1**	.0	.0	.0	7.1	100
Oak/hickory	14.2**	56.6*	.0	.0	70.8	28
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	71.6*	20.9**	.0	.0	92.5	25
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	305.4	105.7	7.1	.0	418.2	3.3
Sampling error (percent)	8	21	100	-	3.3	
	Green tons per acre[b]					
White/red pine	133.4	65.2	27.4	.0	122.6	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	109.0	.0	.0	.0	109.0	
Oak/hickory	109.2	85.7	.0	.0	90.4	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	121.5	59.9	.0	.0	107.6	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	128.9	75.1	27.4	.0	113.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 21.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Merrimack County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	16,022.1	2,453.3**	1,697.6**	.0	20,173.0	17
Spruce/fir	.0	924.0**	.0	.0	924.0	71
Hard pine	.0	350.0**	158.3**	.0	508.3	76
Oak/pine	1,274.2**	.0	.0	.0	1,274.2	72
Oak/hickory	2,528.6**	3,359.1*	.0	.0	5,887.7	31
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	8,028.6*	8,091.6*	140.8**	.0	16,261.0	18
Aspen/birch	.0	1,401.6**	.0	.0	1,401.6	71
Total, all groups	27,853.5	16,579.6	1,996.7	.0	46,429.8	4.6
Sampling error (percent)	12	17	46	-	4.6	
	Thousand acres					Percent
White/red pine	135.0	25.4**	36.0*	.0	196.4	15
Spruce/fir	.0	12.0**	.0	.0	12.0	73
Hard pine	.0	7.4**	7.3**	.0	14.7	71
Oak/pine	14.5**	.0	.0	.0	14.5	71
Oak/hickory	28.9*	43.8*	.0	.0	72.7	30
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	79.2*	80.4*	7.4**	.0	167.0	17
Aspen/birch	.0	14.7**	.0	.0	14.7	71
Total, all groups	257.6	183.7	50.7	.0	492.0	2.4
Sampling error (percent)	11	16	36	-	2.4	
	Green tons per acre[b]					
White/red pine	118.7	96.6	47.2	.0	102.7	
Spruce/fir	.0	77.0	.0	.0	77.0	
Hard pine	.0	47.3	21.7	.0	34.6	
Oak/pine	87.9	.0	.0	.0	87.9	
Oak/hickory	87.5	76.7	.0	.0	81.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	101.4	100.6	19.0	.0	97.4	
Aspen/birch	.0	95.3	.0	.0	95.3	
All groups	108.1	90.3	39.4	.0	94.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 22.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Rockingham County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	19,155.1	1,433.9**	241.2**	.0	20,830.2	16
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	1,301.0**	162.8**	.0	1,463.8	55
Oak/hickory	4,847.8*	1,306.1**	.0	.0	6,153.9	32
Elm/ash/red maple	.0	.0	73.9**	.0	73.9	76
Northern hardwoods	1,497.1**	1,947.8*	.0	.0	3,444.9	42
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	25,500.0	5,988.8	477.9	.0	31,966.7	6.4
Sampling error (percent)	11	29	62	-	6.4	
	Thousand acres					Percent
White/red pine	152.9	14.2**	7.0**	.0	174.1	15
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	21.6**	7.3**	.0	28.9	49
Oak/hickory	43.8*	14.6**	.0	.0	58.4	31
Elm/ash/red maple	.0	.0	8.9**	.0	8.9	75
Northern hardwoods	14.2**	29.5*	5.9**	.0	49.6	37
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	210.9	79.9	29.1	.0	319.9	4.5
Sampling error (percent)	10	27	42	-	4.5	
	Green tons per acre[b]					
White/red pine	125.3	101.0	34.5	.0	119.6	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	60.2	22.3	.0	50.7	
Oak/hickory	110.7	89.5	.0	.0	105.4	
Elm/ash/red maple	.0	.0	8.3	.0	8.3	
Northern hardwoods	105.4	66.0	.0	.0	69.5	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	120.9	75.0	16.4	.0	99.9	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 23.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Strafford County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	6,239.7*	1,279.5**	106.8**	.0	7,626.0	26
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	1,772.2**	.0	.0	.0	1,772.2	71
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	7,283.0	1,351.4**	112.3**	.0	8,746.7	20
Aspen/birch	.0	380.2**	428.8**	.0	809.0	62
Total, all groups	15,294.9	3,011.1	647.9	.0	18,953.9	4.9
Sampling error (percent)	12	43	66	-	4.9	
	Thousand acres					Percent
White/red pine	55.6*	14.2**	5.3**	.0	75.1	25
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	14.2**	.0	.0	.0	14.2	71
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	61.0	15.3**	5.3**	.0	81.6	19
Aspen/birch	.0	7.4**	7.3**	.0	14.7	62
Total, all groups	130.8	36.9	17.9	.0	185.6	2.0
Sampling error (percent)	12	41	42	-	2.0	
	Green tons per acre[b]					
White/red pine	112.2	90.1	20.2	.0	101.5	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	124.8	.0	.0	.0	124.8	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	119.4	88.3	21.2	.0	107.2	
Aspen/birch	.0	51.4	58.7	.0	55.0	
All groups	116.9	81.6	36.2	.0	102.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 24.--Net aboveground tree biomass of all live trees on timberland, by forest-type group and stand-size class, Sullivan County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	12,649.3	601.0**	144.9**	.0	13,395.2	20
Spruce/fir	1,485.6**	.0	.0	.0	1,485.6	71
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	394.6**	.0	.0	.0	394.6	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	7,278.0*	4,930.3*	113.9**	.0	12,322.2	18
Aspen/birch	.0	572.0**	.0	.0	572.0	100
Total, all groups	21,807.5	6,103.3	258.8	.0	28,169.6	5.6
Sampling error (percent)	11	30	69	.0	5.6	
	Thousand acres					Percent
White/red pine	106.2	7.3**	7.0**	.0	120.5	19
Spruce/fir	14.7**	.0	.0	.0	14.7	71
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	7.0**	.0	.0	.0	7.0	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	78.9*	56.8*	7.0**	.0	142.7	16
Aspen/birch	.0	7.4**	.0	.0	7.4	100
Total, all groups	206.8	71.5	14.0	.0	292.3	1.3
Sampling error (percent)	10	28	69	-	1.3	
	Green tons per acre[b]					
White/red pine	119.1	82.3	20.7	.0	111.2	
Spruce/fir	101.1	.0	.0	.0	101.1	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	56.4	.0	.0	.0	56.4	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	92.2	86.8	16.3	.0	86.4	
Aspen/birch	.0	77.3	.0	.0	77.3	
All groups	105.5	85.4	18.5	.0	96.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

MAJOR SPECIES BY WEIGHT
million tons

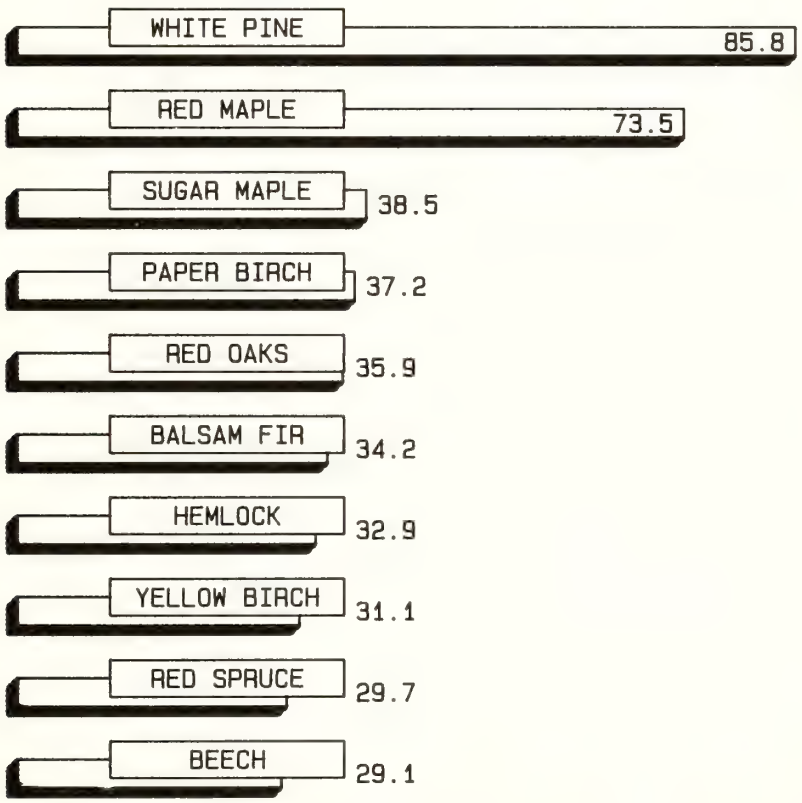


Table 25.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	496,047	94,480	5,463	0	595,990
Tamarack	1,801	1,617	146	0	3,564
White spruce	9,524	4,552	875	22	14,973
Black spruce	1,502	1,627	33	0	3,162
Red spruce	150,586	74,113	8,576	73	233,348
Red pine	8,834	788	1,610	0	11,232
White pine	156,021	86,715	37,625	3,179	283,540
Northern white-cedar	0	1,096	238	22	1,356
Hemlock	114,483	58,221	15,503	489	188,696
Other softwoods	5,276	6,124	956	34	12,390
Total softwoods	944,074	329,333	71,025	3,819	1,348,251
Sugar maple	169,032	47,742	13,188	1,180	231,142
Soft maples	454,925	162,912	21,018	687	639,542
Yellow birch	111,708	42,555	11,664	835	166,762
Paper birch	151,356	71,546	8,831	105	231,838
Gray birch	99,785	7,176	0	0	106,961
Beech	158,052	34,274	10,545	449	203,320
White ash	41,744	18,528	4,449	194	64,915
Black ash	5,962	2,477	236	0	8,675
Aspen	34,091	30,336	4,846	0	69,273
White oaks	21,195	9,460	2,028	50	32,733
Red oaks	69,127	54,851	15,297	567	139,842
Basswood	0	1,694	475	12	2,181
Elm	8,361	1,601	449	17	10,428
Other commercial hardwoods	63,064	22,031	2,741	20	87,856
Noncommercial hardwoods	159,347	11,014	299	21	170,681
Total hardwoods	1,547,749	518,197	96,066	4,137	2,166,149
Total, all species	2,491,823	847,530	167,091	7,956	3,514,400

Table 25.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	9,826.3	20,165.4	4,218.7	.0	34,210.4
Tamarack	11.1	330.5	153.9	.0	495.5
White spruce	136.4	1,092.3	815.6	96.9	2,141.2
Black spruce	52.5	271.9	32.5	.0	356.9
Red spruce	3,695.1	17,676.8	8,104.5	233.2	29,709.6
Red pine	260.1	361.1	2,142.2	.0	2,763.4
White pine	2,961.4	23,429.2	45,375.2	13,991.6	85,757.4
Northern white-cedar	.0	162.3	98.3	22.8	283.4
Hemlock	2,619.1	13,767.0	15,162.1	1,436.8	32,985.0
Other softwoods	283.3	757.2	442.1	33.2	1,515.8
Total softwoods	19,845.3	78,013.7	76,545.1	15,814.5	190,218.6
Sugar maple	3,520.8	14,764.0	15,320.6	4,919.0	38,524.4
Soft maples	11,111.2	40,143.6	20,012.3	2,263.6	73,530.7
Yellow birch	3,368.3	11,729.1	13,324.1	2,731.7	31,153.2
Paper birch	3,994.8	22,233.9	10,568.8	424.8	37,222.3
Gray birch	2,312.1	1,224.5	.0	.0	3,536.6
Beech	3,505.9	11,107.5	13,045.7	1,446.7	29,105.8
White ash	1,176.8	4,856.3	4,574.0	1,283.5	11,890.6
Black ash	129.1	599.3	193.7	.0	922.1
Aspen	981.9	8,287.1	4,690.2	.0	13,959.2
White oaks	809.7	2,346.4	1,982.4	264.5	5,403.0
Red oaks	1,864.7	15,418.7	16,685.0	1,994.9	35,963.3
Basswood	.0	468.2	459.3	56.6	984.1
Elm	305.7	457.3	504.7	47.5	1,315.2
Other commercial hardwoods	1,601.7	5,745.3	2,531.7	59.7	9,938.4
Noncommercial hardwoods	3,030.0	1,928.6	194.6	39.2	5,192.4
Total hardwoods	37,712.7	141,309.8	104,087.1	15,531.7	298,641.3
Total, all species	57,558.0	219,323.5	180,632.2	31,346.2	488,859.9

Table 26.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Belknap County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	4,628	0	0	0	4,628
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	0	631	0	0	631
Red pine	1,426	16	520	0	1,962
White pine	5,748	4,648	1,828	235	12,459
Northern white-cedar	0	0	0	0	0
Hemlock	10,201	5,198	1,142	0	16,541
Other softwoods	0	0	0	0	0
Total softwoods	22,003	10,493	3,490	235	36,221
Sugar maple	7,393	1,853	215	100	9,561
Soft maples	19,020	9,213	1,138	13	29,384
Yellow birch	4,409	2,246	48	33	6,736
Paper birch	10,056	3,299	389	0	13,744
Gray birch	1,426	519	0	0	1,945
Beech	8,644	1,540	343	0	10,527
White ash	0	1,066	18	0	1,084
Black ash	0	0	0	0	0
Aspen	4,278	692	68	0	5,038
White oaks	1,441	222	190	0	1,853
Red oaks	7,174	4,901	1,703	94	13,872
Basswood	0	200	44	0	244
Elm	1,528	0	37	0	1,565
Other commercial hardwoods	0	140	0	0	140
Noncommercial hardwoods	16,706	298	0	0	17,004
Total hardwoods	82,075	26,189	4,193	240	112,697
Total, all species	104,078	36,682	7,683	475	148,918

Table 26.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	51.2	.0	.0	.0	51.2
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	.0	162.0	.0	.0	162.0
Red pine	81.4	11.1	639.0	.0	731.5
White pine	48.4	1,250.0	2,339.3	986.2	4,623.9
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	291.3	1,165.7	1,024.0	.0	2,481.0
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	472.3	2,588.8	4,002.3	986.2	8,049.6
Sugar maple	232.6	446.0	204.2	327.3	1,210.1
Soft maples	416.4	2,302.0	1,096.4	42.4	3,857.2
Yellow birch	328.8	508.3	41.6	92.4	971.1
Paper birch	547.9	1,067.5	460.2	.0	2,075.6
Gray birch	4.1	72.2	.0	.0	76.3
Beech	79.8	406.9	317.8	.0	804.5
White ash	.0	263.5	18.3	.0	281.8
Black ash	.0	.0	.0	.0	.0
Aspen	99.4	157.9	44.3	.0	301.6
White oaks	126.7	77.2	208.0	.0	411.9
Red oaks	58.4	1,425.5	1,683.6	274.8	3,442.3
Basswood	.0	64.2	37.0	.0	101.2
Elm	34.8	.0	38.7	.0	73.5
Other commercial hardwoods	.0	44.8	.0	.0	44.8
Noncommercial hardwoods	307.5	51.5	.0	.0	359.0
Total hardwoods	2,236.4	6,887.5	4,150.1	736.9	14,010.9
Total, all species	2,708.7	9,476.3	8,152.4	1,723.1	22,060.5

Table 27.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Carroll County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	34,654	4,861	211	0	39,726
Tamarack	0	0	0	0	0
White spruce	0	90	0	0	90
Black spruce	0	598	0	0	598
Red spruce	9,536	4,338	1,448	0	15,322
Red pine	0	139	436	0	575
White pine	21,392	5,719	3,869	283	31,263
Northern white-cedar	0	0	0	0	0
Hemlock	13,285	9,088	3,195	136	25,704
Other softwoods	3,786	3,680	513	21	8,000
Total softwoods	82,653	28,513	9,672	440	121,278
Sugar maple	21,212	3,358	1,727	265	26,562
Soft maples	52,529	23,295	3,182	153	79,159
Yellow birch	7,582	4,873	1,578	149	14,182
Paper birch	16,604	4,140	451	22	21,217
Gray birch	11,430	709	0	0	12,139
Beech	45,072	8,633	3,437	176	57,318
White ash	5,750	1,429	739	49	7,967
Black ash	0	435	0	0	435
Aspen	0	2,698	728	0	3,426
White oaks	0	252	21	0	273
Red oaks	9,608	5,478	1,468	11	16,565
Basswood	0	45	0	0	45
Elm	0	88	0	0	88
Other commercial hardwoods	0	350	0	0	350
Noncommercial hardwoods	14,200	609	0	0	14,809
Total hardwoods	183,987	56,392	13,331	825	254,535
Total, all species	266,640	84,905	23,003	1,265	375,813

Table 27.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	777.1	978.9	153.2	.0	1,909.2
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	17.5	.0	.0	17.5
Black spruce	.0	86.1	.0	.0	86.1
Red spruce	270.8	1,257.8	1,394.9	.0	2,923.5
Red pine	.0	67.7	711.8	.0	779.5
White pine	297.5	1,485.9	4,458.8	1,283.8	7,526.0
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	343.8	2,252.1	3,260.4	394.3	6,250.6
Other softwoods	240.7	386.6	277.9	23.7	928.9
Total softwoods	1,929.9	6,532.6	10,257.0	1,701.8	20,421.3
Sugar maple	422.5	895.2	2,604.0	1,183.3	5,105.0
Soft maples	1,088.8	5,401.4	3,328.1	552.3	10,370.6
Yellow birch	221.3	1,642.2	1,798.0	526.0	4,187.5
Paper birch	410.4	1,195.1	558.9	99.7	2,264.1
Gray birch	543.9	133.7	.0	.0	677.6
Beech	1,011.5	2,823.5	4,771.8	629.5	9,236.3
White ash	155.0	373.3	807.5	172.9	1,508.7
Black ash	.0	73.7	.0	.0	73.7
Aspen	.0	748.8	631.3	.0	1,380.1
White oaks	.0	44.6	11.8	.0	56.4
Red oaks	420.3	1,427.0	1,768.9	65.3	3,681.5
Basswood	.0	9.6	.0	.0	9.6
Elm	.0	16.6	.0	.0	16.6
Other commercial hardwoods	.0	77.0	.0	.0	77.0
Noncommercial hardwoods	157.3	66.0	.0	.0	223.3
Total hardwoods	4,431.0	14,927.7	16,280.3	3,229.0	38,868.0
Total, all species	6,360.9	21,460.3	26,537.3	4,930.8	59,289.3

Table 28.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Cheshire County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	4,475	402	0	0	4,877
Tamarack	0	33	0	0	33
White spruce	0	0	0	0	0
Black spruce	0	35	0	0	35
Red spruce	2,984	3,151	103	16	6,254
Red pine	0	0	30	0	30
White pine	9,961	9,461	3,683	284	23,389
Northern white-cedar	0	0	0	0	0
Hemlock	23,356	5,657	1,321	0	30,334
Other softwoods	0	0	0	0	0
Total softwoods	40,776	18,739	5,137	300	64,952
Sugar maple	2,983	4,247	867	77	8,174
Soft maples	58,714	18,306	2,455	125	79,600
Yellow birch	5,915	2,052	309	4	8,280
Paper birch	4,475	5,122	318	0	9,915
Gray birch	0	382	0	0	382
Beech	23,502	3,303	1,208	41	28,054
White ash	4,371	1,467	444	0	6,282
Black ash	0	34	17	0	51
Aspen	0	1,101	80	0	1,181
White oaks	1,439	438	96	0	1,973
Red oaks	4,371	6,607	2,915	57	13,950
Basswood	0	0	0	0	0
Elm	0	135	63	0	198
Other commercial hardwoods	11,621	7,037	714	0	19,372
Noncommercial hardwoods	5,914	620	0	0	6,534
Total hardwoods	123,305	50,851	9,486	304	183,946
Total, all species	164,081	69,590	14,623	604	248,898

Table 28.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	39.5	58.0	.0	.0	97.5
Tamarack	.0	3.7	.0	.0	3.7
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	11.8	.0	.0	11.8
Red spruce	17.3	721.2	132.1	45.5	916.1
Red pine	.0	.0	51.0	.0	51.0
White pine	287.8	2,642.0	4,164.7	1,614.9	8,709.4
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	567.1	1,278.1	1,299.6	.0	3,144.8
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	911.7	4,714.8	5,647.4	1,660.4	12,934.3
Sugar maple	153.2	1,461.2	859.1	350.4	2,823.9
Soft maples	1,947.1	4,458.0	2,007.5	309.7	8,722.3
Yellow birch	68.7	506.3	319.9	52.7	947.6
Paper birch	161.6	1,647.3	306.4	.0	2,115.3
Gray birch	.0	60.9	.0	.0	60.9
Beech	488.1	957.7	1,268.8	119.9	2,834.5
White ash	68.2	420.6	404.2	.0	893.0
Black ash	.0	3.9	12.5	.0	16.4
Aspen	.0	273.5	90.6	.0	364.1
White oaks	54.9	169.2	91.2	.0	315.3
Red oaks	211.6	1,811.5	3,544.2	170.1	5,737.4
Basswood	.0	.0	.0	.0	.0
Elm	.0	79.4	85.9	.0	165.3
Other commercial hardwoods	255.8	1,759.8	627.6	.0	2,643.2
Noncommercial hardwoods	369.9	108.8	.0	.0	478.7
Total hardwoods	3,779.1	13,718.1	9,617.9	1,002.8	28,117.9
Total, all species	4,690.8	18,432.9	15,265.3	2,663.2	41,052.2

Table 29.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Coos County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	293,258	61,197	4,206	0	358,661
Tamarack	1,801	1,165	88	0	3,054
White spruce	7,530	4,416	875	22	12,843
Black spruce	0	641	0	0	641
Red spruce	60,655	36,192	3,663	41	100,551
Red pine	0	0	0	0	0
White pine	0	666	190	110	966
Northern white-cedar	0	1,027	238	22	1,287
Hemlock	0	456	490	121	1,067
Other softwoods	0	0	0	0	0
Total softwoods	363,244	105,760	9,750	316	479,070
Sugar maple	31,737	14,506	3,978	177	50,398
Soft maples	44,303	16,597	2,530	0	63,430
Yellow birch	39,090	17,884	5,072	388	62,434
Paper birch	48,560	24,354	2,396	20	75,330
Gray birch	0	544	0	0	544
Beech	11,513	5,198	874	0	17,585
White ash	0	828	93	0	921
Black ash	0	413	0	0	413
Aspen	13,632	10,958	1,602	0	26,192
White oaks	0	0	0	0	0
Red oaks	0	0	0	0	0
Basswood	0	0	0	0	0
Elm	5,402	332	0	0	5,734
Other commercial hardwoods	0	1,642	340	20	2,002
Noncommercial hardwoods	58,030	3,472	74	0	61,576
Total hardwoods	252,267	96,728	16,959	605	366,559
Total, all species	615,511	202,488	26,709	921	845,629

Table 29.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	5,856.7	13,384.6	3,303.9	.0	22,545.2
Tamarack	11.1	268.1	86.6	.0	365.8
White spruce	124.5	1,069.6	815.6	96.9	2,106.6
Black spruce	.0	100.3	.0	.0	100.3
Red spruce	1,657.3	8,644.0	3,415.3	125.1	13,841.7
Red pine	.0	.0	.0	.0	.0
White pine	.0	186.3	232.8	503.3	922.4
Northern white-cedar	.0	151.8	98.3	22.8	272.9
Hemlock	.0	160.3	473.4	363.7	997.4
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	7,649.6	23,965.0	8,425.9	1,111.8	41,152.3
Sugar maple	1,061.8	4,794.7	4,390.1	676.1	10,922.7
Soft maples	1,591.9	4,239.4	2,448.1	.0	8,279.4
Yellow birch	1,237.4	4,758.1	5,953.6	1,276.7	13,225.8
Paper birch	1,150.6	7,291.1	2,966.6	87.5	11,495.8
Gray birch	.0	103.6	.0	.0	103.6
Beech	115.3	1,803.7	1,016.2	.0	2,935.2
White ash	.0	188.8	83.8	.0	272.6
Black ash	.0	69.1	.0	.0	69.1
Aspen	528.5	2,869.5	1,456.0	.0	4,854.0
White oaks	.0	.0	.0	.0	.0
Red oaks	.0	.0	.0	.0	.0
Basswood	.0	.0	.0	.0	.0
Elm	248.9	52.7	.0	.0	301.6
Other commercial hardwoods	.0	436.5	292.1	59.7	788.3
Noncommercial hardwoods	1,155.4	573.3	60.7	.0	1,789.4
Total hardwoods	7,089.8	27,180.5	18,667.2	2,100.0	55,037.5
Total, all species	14,739.4	51,145.5	27,093.1	3,211.8	96,189.8

Table 30.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Grafton County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	143,630	24,617	876	0	169,123
Tamarack	0	251	58	0	309
White spruce	1,994	46	0	0	2,040
Black spruce	0	0	0	0	0
Red spruce	60,394	19,741	2,079	16	82,230
Red pine	2,844	0	60	0	2,904
White pine	20,321	10,508	3,280	487	34,596
Northern white-cedar	0	69	0	0	69
Hemlock	10,504	5,748	1,843	41	18,136
Other softwoods	0	0	0	0	0
Total softwoods	239,687	60,980	8,196	544	309,407
Sugar maple	60,558	13,686	3,804	328	78,376
Soft maples	93,355	28,867	3,806	179	126,207
Yellow birch	26,670	8,339	2,968	228	38,205
Paper birch	48,075	17,619	3,364	32	69,090
Gray birch	14,312	2,087	0	0	16,399
Beech	38,646	6,911	2,430	107	48,094
White ash	14,491	5,451	1,758	67	21,767
Black ash	0	1,060	23	0	1,083
Aspen	2,844	5,596	1,351	0	9,791
White oaks	1,994	0	63	16	2,073
Red oaks	4,019	10,213	1,481	51	15,764
Basswood	0	46	156	12	214
Elm	0	184	46	0	230
Other commercial hardwoods	6,159	1,592	278	0	8,029
Noncommercial hardwoods	24,996	2,945	137	21	28,099
Total hardwoods	336,119	104,596	21,665	1,041	463,421
Total, all species	575,806	165,576	29,861	1,585	772,828

Table 30.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	2,761.2	5,095.2	643.7	.0	8,500.1
Tamarack	.0	37.8	67.3	.0	105.1
White spruce	11.9	5.2	.0	.0	17.1
Black spruce	.0	.0	.0	.0	.0
Red spruce	1,475.2	4,630.6	2,039.4	62.6	8,207.8
Red pine	47.3	.0	155.6	.0	202.9
White pine	347.8	3,100.9	4,272.7	2,487.0	10,208.4
Northern white-cedar	.0	10.5	.0	.0	10.5
Hemlock	105.0	1,367.0	1,864.2	124.0	3,460.2
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	4,748.4	14,247.2	9,042.9	2,673.6	30,712.1
Sugar maple	886.3	4,187.6	4,613.1	1,460.7	11,147.7
Soft maples	1,860.9	7,486.6	3,899.9	667.4	13,914.8
Yellow birch	806.4	2,465.4	3,485.5	745.4	7,502.7
Paper birch	1,433.5	5,760.1	4,023.1	135.5	11,352.2
Gray birch	255.0	387.4	.0	.0	642.4
Beech	908.2	2,623.0	3,199.9	346.3	7,077.4
White ash	146.1	1,457.9	1,839.9	779.0	4,222.9
Black ash	.0	242.5	17.8	.0	260.3
Aspen	6.6	1,832.8	1,558.0	.0	3,397.4
White oaks	23.3	.0	64.8	50.2	138.3
Red oaks	118.6	2,690.8	1,757.7	277.2	4,844.3
Basswood	.0	5.1	166.9	56.6	228.6
Elm	.0	43.7	36.3	.0	80.0
Other commercial hardwoods	90.3	384.7	267.1	.0	742.1
Noncommercial hardwoods	302.3	549.4	82.3	39.2	973.2
Total hardwoods	6,837.5	30,117.0	25,012.3	4,557.5	66,524.3
Total, all species	11,585.9	44,364.2	34,055.2	7,231.1	97,236.4

Table 31.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Hillsboro County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	0	0	0	0	0
Tamarack	0	32	0	0	32
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	1,431	637	122	0	2,190
Red pine	1,584	165	57	0	1,806
White pine	22,934	21,769	9,118	514	54,335
Northern white-cedar	0	0	0	0	0
Hemlock	5,885	5,935	1,852	79	13,751
Other softwoods	0	139	167	0	306
Total softwoods	31,834	28,677	11,316	593	72,420
Sugar maple	5,362	770	582	28	6,742
Soft maples	48,633	15,689	1,576	82	65,980
Yellow birch	4,318	1,342	354	0	6,014
Paper birch	1,431	3,700	371	0	5,502
Gray birch	4,454	230	0	0	4,684
Beech	13,033	1,598	513	52	15,196
White ash	7,030	3,092	257	0	10,379
Black ash	0	66	0	0	66
Aspen	0	732	253	0	985
White oaks	1,440	3,830	349	24	5,643
Red oaks	8,588	9,697	2,542	210	21,037
Basswood	0	0	120	0	120
Elm	1,431	33	0	0	1,464
Other commercial hardwoods	11,571	3,836	431	0	15,838
Noncommercial hardwoods	7,180	548	0	0	7,728
Total hardwoods	114,471	45,163	7,348	396	167,378
Total, all species	146,305	73,840	18,664	989	239,798

Table 31.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	.0	.0	.0	.0	.0
Tamarack	.0	4.8	.0	.0	4.8
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	30.8	126.5	93.7	.0	251.0
Red pine	51.2	52.7	43.7	.0	147.6
White pine	547.0	5,952.9	10,527.9	2,201.7	19,229.5
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	121.5	1,395.0	1,997.1	240.5	3,754.1
Other softwoods	.0	40.5	57.7	.0	98.2
Total softwoods	750.5	7,572.4	12,720.1	2,442.2	23,485.2
Sugar maple	63.2	248.4	560.2	97.9	969.7
Soft maples	1,188.8	3,874.7	1,542.8	231.9	6,838.2
Yellow birch	169.3	331.3	454.9	.0	955.5
Paper birch	30.4	1,008.3	469.5	.0	1,508.2
Gray birch	312.0	37.2	.0	.0	349.2
Beech	427.3	522.7	644.5	141.0	1,735.5
White ash	275.2	708.2	219.3	.0	1,202.7
Black ash	.0	12.4	.0	.0	12.4
Aspen	.0	132.6	177.8	.0	310.4
White oaks	81.4	899.1	309.4	157.3	1,447.2
Red oaks	188.2	3,059.4	2,607.3	714.6	6,569.5
Basswood	.0	.0	92.5	.0	92.5
Elm	22.0	4.8	.0	.0	26.8
Other commercial hardwoods	430.8	971.7	409.6	.0	1,812.1
Noncommercial hardwoods	62.9	133.7	.0	.0	196.6
Total hardwoods	3,251.5	11,944.5	7,487.8	1,342.7	24,026.5
Total, all species	4,002.0	19,516.9	20,207.9	3,784.9	47,511.7

Table 32.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Merrimack County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	5,251	1,292	105	0	6,648
Tamarack	0	136	0	0	136
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	12,662	2,719	157	0	15,538
Red pine	2,980	206	82	0	3,268
White pine	32,511	11,913	5,314	392	50,130
Northern white-cedar	0	0	0	0	0
Hemlock	27,811	10,570	1,531	15	39,927
Other softwoods	1,490	1,399	196	13	3,098
Total softwoods	82,705	28,235	7,385	420	118,745
Sugar maple	8,864	3,627	394	49	12,934
Soft maples	65,860	23,363	2,106	44	91,373
Yellow birch	8,902	1,872	459	17	11,250
Paper birch	7,836	6,041	788	0	14,665
Gray birch	23,801	875	0	0	24,676
Beech	7,306	2,514	696	0	10,516
White ash	1,491	1,295	237	28	3,051
Black ash	5,962	68	0	0	6,030
Aspen	10,428	4,591	427	0	15,446
White oaks	5,933	1,952	647	10	8,542
Red oaks	10,354	6,175	2,495	39	19,063
Basswood	0	431	34	0	465
Elm	0	68	46	0	114
Other commercial hardwoods	13,260	1,861	168	0	15,289
Noncommercial hardwoods	8,901	480	71	0	9,452
Total hardwoods	178,898	55,213	8,568	187	242,866
Total, all species	261,603	83,448	15,953	607	361,611

Table 32.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	76.7	268.1	85.8	.0	430.6
Tamarack	.0	16.1	.0	.0	16.1
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	224.7	683.6	123.1	.0	1,031.4
Red pine	80.2	99.5	97.3	.0	277.0
White pine	538.7	3,236.3	6,679.8	1,572.5	12,027.3
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	597.4	2,276.2	1,437.4	24.0	4,335.0
Other softwoods	42.6	231.4	70.1	9.5	353.6
Total softwoods	1,560.3	6,811.2	8,493.5	1,606.0	18,471.0
Sugar maple	147.8	1,020.6	448.1	115.7	1,732.2
Soft maples	1,627.7	5,192.1	1,947.9	182.1	8,949.8
Yellow birch	243.1	496.1	443.3	20.2	1,202.7
Paper birch	90.2	2,080.2	924.4	.0	3,094.8
Gray birch	700.3	124.5	.0	.0	824.8
Beech	361.9	676.2	750.8	.0	1,788.9
White ash	65.3	310.3	215.7	151.6	742.9
Black ash	129.1	6.9	.0	.0	136.0
Aspen	288.9	1,183.4	377.5	.0	1,849.8
White oaks	227.4	493.2	669.4	57.0	1,447.0
Red oaks	373.3	1,961.0	2,476.1	130.8	4,941.2
Basswood	.0	127.0	31.1	.0	158.1
Elm	.0	14.5	48.8	.0	63.3
Other commercial hardwoods	138.8	424.7	153.0	.0	716.5
Noncommercial hardwoods	182.2	77.9	50.7	.0	310.8
Total hardwoods	4,576.0	14,188.6	8,536.8	657.4	27,958.8
Total, all species	6,136.3	20,999.8	17,030.3	2,263.4	46,429.8

Table 33.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Rockingham County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	0	0	0	0	0
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	0	0	0	0	0
Red pine	0	262	425	0	687
White pine	17,765	11,567	6,275	439	36,046
Northern white-cedar	0	0	0	0	0
Hemlock	11,513	7,747	1,655	43	20,958
Other softwoods	0	872	80	0	952
Total softwoods	29,278	20,448	8,435	482	58,643
Sugar maple	8,981	568	83	12	9,644
Soft maples	28,703	11,518	1,285	0	41,506
Yellow birch	5,918	538	36	0	6,492
Paper birch	3,000	746	34	0	3,780
Gray birch	16,341	454	0	0	16,795
Beech	4,356	759	225	13	5,353
White ash	0	549	128	14	691
Black ash	0	0	0	0	0
Aspen	0	903	86	0	989
White oaks	7,399	1,843	527	0	9,769
Red oaks	5,918	7,542	1,669	48	15,177
Basswood	0	241	39	0	280
Elm	0	333	101	17	451
Other commercial hardwoods	14,708	3,557	502	0	18,767
Noncommercial hardwoods	8,638	312	0	0	8,950
Total hardwoods	103,962	29,863	4,715	104	138,644
Total, all species	133,240	50,311	13,150	586	197,287

Table 33.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	.0	.0	.0	.0	.0
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	.0	.0	.0	.0	.0
Red pine	.0	130.1	443.8	.0	573.9
White pine	456.2	2,928.2	7,461.0	1,727.2	12,572.6
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	387.6	1,896.1	1,575.0	117.6	3,976.3
Other softwoods	.0	94.1	36.4	.0	130.5
Total softwoods	843.8	5,048.5	9,516.2	1,844.8	17,253.3
Sugar maple	125.5	187.7	101.1	48.4	462.7
Soft maples	413.6	2,921.9	1,126.0	.0	4,461.5
Yellow birch	190.1	93.7	39.9	.0	323.7
Paper birch	81.4	243.4	45.0	.0	369.8
Gray birch	130.7	84.6	.0	.0	215.3
Beech	52.0	200.6	235.4	26.1	514.1
White ash	.0	133.6	112.0	49.2	294.8
Black ash	.0	.0	.0	.0	.0
Aspen	.0	183.8	72.9	.0	256.7
White oaks	286.8	504.2	484.1	.0	1,275.1
Red oaks	43.4	1,961.1	1,645.8	143.5	3,793.8
Basswood	.0	74.4	61.2	.0	135.6
Elm	.0	128.0	119.7	47.5	295.2
Other commercial hardwoods	448.1	1,108.0	560.8	.0	2,116.9
Noncommercial hardwoods	122.8	75.4	.0	.0	198.2
Total hardwoods	1,894.4	7,900.4	4,603.9	314.7	14,713.4
Total, all species	2,738.2	12,948.9	14,120.1	2,159.5	31,966.7

Table 34.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Strafford County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	0	606	0	0	606
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	0	0	0	0	0
Red spruce	0	560	90	0	650
Red pine	0	0	0	0	0
White pine	21,436	5,415	2,032	135	29,018
Northern white-cedar	0	0	0	0	0
Hemlock	7,663	2,542	845	54	11,104
Other softwoods	0	34	0	0	34
Total softwoods	29,099	9,157	2,967	189	41,412
Sugar maple	0	904	227	0	1,131
Soft maples	14,513	8,125	1,410	46	24,094
Yellow birch	4,478	1,025	454	0	5,957
Paper birch	1,487	1,684	210	0	3,381
Gray birch	28,021	689	0	0	28,710
Beech	4,478	1,878	512	32	6,900
White ash	0	1,253	180	0	1,433
Black ash	0	0	0	0	0
Aspen	1,487	1,241	0	0	2,728
White oaks	1,549	923	135	0	2,607
Red oaks	3,035	3,348	812	57	7,252
Basswood	0	462	49	0	511
Elm	0	189	0	0	189
Other commercial hardwoods	1,399	1,343	83	0	2,825
Noncommercial hardwoods	3,098	171	0	0	3,269
Total hardwoods	63,545	23,235	4,072	135	90,987
Total, all species	92,644	32,392	7,039	324	132,399

Table 34.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	.0	80.7	.0	.0	80.7
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	.0	.0	.0	.0	.0
Red spruce	.0	133.4	72.5	.0	205.9
Red pine	.0	.0	.0	.0	.0
White pine	398.9	1,466.6	2,592.2	486.4	4,944.1
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	58.6	548.1	824.4	172.7	1,603.8
Other softwoods	.0	4.6	.0	.0	4.6
Total softwoods	457.5	2,233.4	3,489.1	659.1	6,839.1
Sugar maple	.0	253.3	203.3	.0	456.6
Soft maples	371.9	2,248.6	1,369.7	120.7	4,110.9
Yellow birch	21.1	319.0	431.6	.0	771.7
Paper birch	5.7	570.7	301.8	.0	878.2
Gray birch	366.1	111.2	.0	.0	477.3
Beech	36.0	545.4	505.9	105.3	1,192.6
White ash	.0	390.7	213.8	.0	604.5
Black ash	.0	.0	.0	.0	.0
Aspen	55.3	362.2	.0	.0	417.5
White oaks	9.2	158.9	143.7	.0	311.8
Red oaks	8.8	841.8	970.2	218.6	2,039.4
Basswood	.0	144.7	37.8	.0	182.5
Elm	.0	40.6	.0	.0	40.6
Other commercial hardwoods	116.5	365.4	62.7	.0	544.6
Noncommercial hardwoods	56.1	30.5	.0	.0	86.6
Total hardwoods	1,046.7	6,383.0	4,240.5	444.6	12,114.8
Total, all species	1,504.2	8,616.4	7,729.6	1,103.7	18,953.9

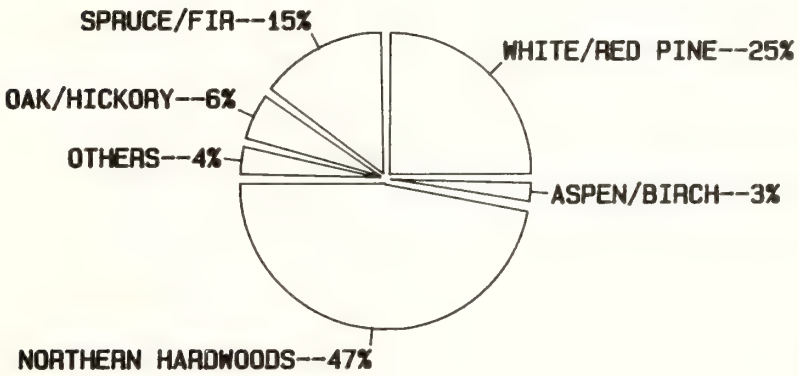
Table 35.--Number of trees and net aboveground tree biomass of all live trees on timberland, by species and diameter group, Sullivan County, New Hampshire, 1983

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand trees				
Balsam fir	10,151	1,505	65	0	11,721
Tamarack	0	0	0	0	0
White spruce	0	0	0	0	0
Black spruce	1,502	353	33	0	1,888
Red spruce	2,924	6,144	914	0	9,982
Red pine	0	0	0	0	0
White pine	3,953	5,049	2,036	300	11,338
Northern white-cedar	0	0	0	0	0
Hemlock	4,265	5,280	1,629	0	11,174
Other softwoods	0	0	0	0	0
Total softwoods	22,795	18,331	4,677	300	46,103
Sugar maple	21,942	4,223	1,311	144	27,620
Soft maples	29,295	7,939	1,530	45	38,809
Yellow birch	4,426	2,384	386	16	7,212
Paper birch	9,832	4,841	510	31	15,214
Gray birch	0	687	0	0	687
Beech	1,502	1,940	307	28	3,777
White ash	8,611	2,098	595	36	11,340
Black ash	0	401	196	0	597
Aspen	1,422	1,824	251	0	3,497
White oaks	0	0	0	0	0
Red oaks	16,060	890	212	0	17,162
Basswood	0	269	33	0	302
Elm	0	239	156	0	395
Other commercial hardwoods	4,346	673	225	0	5,244
Noncommercial hardwoods	11,684	1,559	17	0	13,260
Total hardwoods	109,120	29,967	5,729	300	145,116
Total, all species	131,915	48,298	10,406	600	191,219

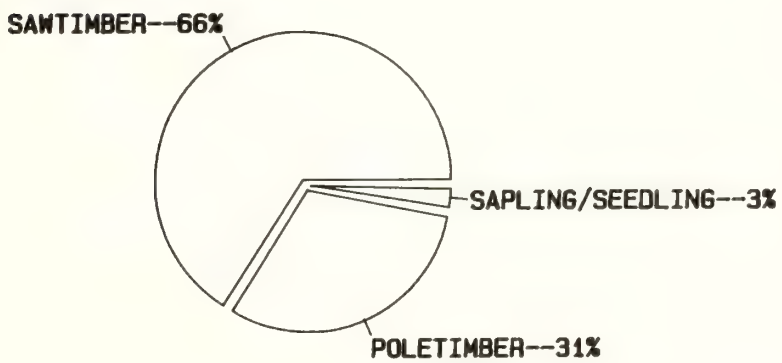
Table 35.--Continued

Species	Diameter group (inches at breast height)				All groups
	1.0-4.9	5.0-10.9	11.0-20.9	21+	
	Thousand green tons				
Balsam fir	263.9	299.9	32.1	.0	595.9
Tamarack	.0	.0	.0	.0	.0
White spruce	.0	.0	.0	.0	.0
Black spruce	52.5	73.7	32.5	.0	158.7
Red spruce	19.0	1,317.7	833.5	.0	2,170.2
Red pine	.0	.0	.0	.0	.0
White pine	39.1	1,180.1	2,646.0	1,128.6	4,993.8
Northern white-cedar	.0	.0	.0	.0	.0
Hemlock	146.8	1,428.4	1,406.6	.0	2,981.8
Other softwoods	.0	.0	.0	.0	.0
Total softwoods	521.3	4,299.8	4,950.7	1,128.6	10,900.4
Sugar maple	427.9	1,269.3	1,337.4	659.2	3,693.8
Soft maples	604.1	2,018.9	1,245.9	157.1	4,026.0
Yellow birch	82.1	608.7	355.8	18.3	1,064.9
Paper birch	83.1	1,370.2	512.9	102.1	2,068.3
Gray birch	.0	109.2	.0	.0	109.2
Beech	25.8	547.8	334.6	78.6	986.8
White ash	467.0	609.4	659.5	130.8	1,866.7
Black ash	.0	190.8	163.4	.0	354.2
Aspen	3.2	542.6	281.8	.0	827.6
White oaks	.0	.0	.0	.0	.0
Red oaks	442.1	240.6	231.2	.0	913.9
Basswood	.0	43.2	32.8	.0	76.0
Elm	.0	77.0	175.3	.0	252.3
Other commercial hardwoods	121.4	172.7	158.8	.0	452.9
Noncommercial hardwoods	313.6	262.1	.9	.0	576.6
Total hardwoods	2,570.3	8,062.5	5,490.3	1,146.1	17,269.2
Total, all species	3,091.6	12,362.3	10,441.0	2,274.7	28,169.6

ABOVEGROUND BIOMASS of CULL and SALVABLE DEAD TREES



FOREST-TYPE GROUP



STANDSIZE CLASS

Table 36.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	12,786.4	2,399.2	695.6*	.0	15,881.2	9
Spruce/fir	6,043.4	3,476.3	56.4**	.0	9,576.1	14
Hard pine	.0	138.4**	72.1**	.0	210.5	68
Oak/pine	873.6**	265.3**	10.3**	.0	1,149.2	44
Oak/hickory	2,299.7	1,769.4*	.0	.0	4,069.1	17
Elm/ash/red maple	57.4**	42.7**	39.4**	.0	139.5	55
Northern hardwoods	19,077.4	10,094.1	720.2*	.0	29,891.7	7
Aspen/birch	536.6*	1,586.5*	53.1**	.0	2,176.2	25
Total, all groups	41,674.5	19,771.9	1,647.1	.0	63,093.5	3.4
Sampling error (percent)	5.3	8.3	24.4	-	3.4	
	Thousand acres					Percent
White/red pine	1,067.3	185.4	103.3*	.0	1,356.0	6
Spruce/fir	326.0	311.8	39.8*	.0	677.6	10
Hard pine	9.4**	16.7**	15.6**	.0	41.7	44
Oak/pine	56.0*	36.6*	7.3**	.0	99.9	28
Oak/hickory	202.3	183.1	9.8**	.0	395.2	13
Elm/ash/red maple	8.1**	6.7**	17.5**	.0	32.3	47
Northern hardwoods	1,216.2	681.3	106.1*	.0	2,003.6	5
Aspen/birch	48.2*	132.6*	25.0**	.0	205.8	20
Total, all groups	2,933.5	1,554.2	324.4	.0	4,812.1	.8
Sampling error (percent)	3.3	6.1	14.9	-	.8	
	Green tons per acre[b]					
White/red pine	12.0	12.9	6.7	.0	11.7	
Spruce/fir	18.5	11.1	1.4	.0	14.1	
Hard pine	.0	8.3	4.6	.0	5.0	
Oak/pine	15.6	7.2	1.4	.0	11.5	
Oak/hickory	11.4	9.7	.0	.0	10.3	
Elm/ash/red maple	7.1	6.4	2.3	.0	4.3	
Northern hardwoods	15.7	14.8	6.8	.0	14.9	
Aspen/birch	11.1	12.0	2.1	.0	10.6	
All groups	14.2	12.7	5.1	.0	13.1	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 37.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Belknap County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	393.9*	45.7**	.0	.0	439.6	37
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	51.7**	10.5**	.0	.0	62.2	85
Oak/hickory	374.2**	19.3**	.0	.0	393.5	49
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	626.2*	461.0**	6.5**	.0	1,093.7	33
Aspen/birch	.0	83.8**	.0	.0	83.8	100
Total, all groups	1,446.0	620.3	6.5	.0	2,072.8	15.4
Sampling error (percent)	22	43	100	-	15.4	
	Thousand acres					Percent
White/red pine	65.3*	14.1**	.0	.0	79.4	26
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	7.1**	7.0**	.0	.0	14.1	71
Oak/hickory	28.7*	7.6**	.0	.0	36.3	41
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	36.0*	29.3*	7.0**	.0	72.3	27
Aspen/birch	.0	7.6**	7.6**	.0	15.2	71
Total, all groups	137.1	65.6	14.6	.0	217.3	1.6
Sampling error (percent)	14	29	71	-	1.6	
	Green tons per acre[b]					
White/red pine	6.0	3.2	.0	.0	5.5	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	7.3	1.5	.0	.0	4.4	
Oak/hickory	13.0	2.5	.0	.0	10.8	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	17.4	15.7	.9	.0	15.1	
Aspen/birch	.0	11.0	.0	.0	5.5	
All groups	10.5	9.5	.0	.0	9.5	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 38.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Carroll County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,160.2*	594.0**	.0	.0	1,754.2	35
Spruce/fir	275.6**	.0	.0	.0	275.6	71
Hard pine	.0	4.5**	26.0**	.0	30.5	87
Oak/pine	233.0**	.0	.0	.0	233.0	100
Oak/hickory	23.1**	8.0**	.0	.0	31.1	79
Elm/ash/red maple	57.4**	.0	.0	.0	57.4	100
Northern hardwoods	3,560.8	532.7**	.0	.0	4,093.5	17
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	5,310.1	1,139.2	26.0	.0	6,475.3	11.1
Sampling error (percent)	14	36	100	-	11.1	
	Thousand acres					Percent
White/red pine	124.3	37.7*	.0	.0	162.0	20
Spruce/fir	19.0**	.0	.0	.0	19.0	71
Hard pine	9.3**	9.3**	8.4**	.0	27.0	57
Oak/pine	9.7**	.0	.0	.0	9.7	100
Oak/hickory	19.4**	8.4**	.0	.0	27.8	57
Elm/ash/red maple	8.2**	.0	.0	.0	8.2	100
Northern hardwoods	225.7	38.1*	8.3**	.0	272.1	13
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	415.6	93.5	16.7	.0	525.8	2.3
Sampling error (percent)	7	28	62	-	2.3	
	Green tons per acre[b]					
White/red pine	9.3	15.8	.0	.0	10.8	
Spruce/fir	14.5	.0	.0	.0	14.5	
Hard pine	.0	.5	3.1	.0	1.1	
Oak/pine	24.0	.0	.0	.0	24.0	
Oak/hickory	1.2	1.0	.0	.0	1.1	
Elm/ash/red maple	7.0	.0	.0	.0	7.0	
Northern hardwoods	15.8	14.0	.0	.0	15.0	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	12.8	12.2	1.6	.0	12.3	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 39.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Cheshire County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,143.6*	284.5**	25.5**	.0	1,453.6	30
Spruce/fir	.0	94.6**	.0	.0	94.6	100
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	10.4**	94.9**	.0	.0	105.3	91
Oak/hickory	280.7*	437.6**	.0	.0	718.3	43
Elm/ash/red maple	.0	42.7**	.0	.0	42.7	100
Northern hardwoods	1,480.3	1,096.8*	97.3**	.0	2,674.4	17
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	2,915.0	2,051.1	122.8	.0	5,088.9	9.4
Sampling error (percent)	16	23	81	-	9.4	
	Thousand acres					Percent
White/red pine	93.5	14.4**	14.5**	.0	122.4	20
Spruce/fir	.0	6.8**	.0	.0	6.8	100
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	6.9**	8.0**	.0	.0	14.9	71
Oak/hickory	36.1*	21.9**	.0	.0	58.0	33
Elm/ash/red maple	.0	6.7**	.0	.0	6.7	100
Northern hardwoods	108.5	72.6*	6.7**	.0	187.8	15
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	245.0	130.4	21.2	.0	396.6	3.5
Sampling error (percent)	11	20	58	-	3.5	
	Green tons per acre[b]					
White/red pine	12.2	19.8	1.8	.0	11.9	
Spruce/fir	.0	13.9	.0	.0	13.9	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	1.5	11.9	.0	.0	7.1	
Oak/hickory	7.8	20.0	.0	.0	12.4	
Elm/ash/red maple	.0	6.4	.0	.0	6.4	
Northern hardwoods	13.6	15.1	14.5	.0	14.2	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	11.9	15.7	5.8	.0	12.8	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 40.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Coos County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	.0	.0	152.5**	.0	152.5	100
Spruce/fir	4,332.3	2,353.4*	56.4**	.0	6,742.1	16
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,370.9	2,372.3*	166.7**	.0	6,909.9	14
Aspen/birch	223.3**	846.3*	30.2**	.0	1,099.8	36
Total, all groups	8,926.5	5,572.0	405.8	.0	14,904.3	7.3
Sampling error (percent)	13	16	44	-	7.3	
	Thousand acres					Percent
White/red pine	.0	.0	9.7**	.0	9.7	100
Spruce/fir	219.7	222.7	29.0**	.0	471.4	11
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	.0	.0	.0	.0	.0	-
Elm/ash/red maple	.0	.0	8.5**	.0	8.5	100
Northern hardwoods	271.9	136.6	29.4**	.0	437.9	11
Aspen/birch	17.8**	66.1*	10.1**	.0	94.0	30
Total, all groups	509.4	425.4	86.7	.0	1,021.5	1.2
Sampling error (percent)	9	12	30	-	1.2	
	Green tons per acre[b]					
White/red pine	.0	.0	15.7	.0	15.7	
Spruce/fir	19.7	10.6	1.9	.0	14.3	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	.0	.0	.0	.0	.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	16.1	17.4	5.7	.0	15.8	
Aspen/birch	12.5	12.8	3.0	.0	11.7	
All groups	17.5	13.1	4.7	.0	14.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 41.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Grafton County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	2,077.8*	362.2**	124.3**	.0	2,564.3	28
Spruce/fir	1,325.7*	981.6*	.0	.0	2,307.3	30
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	417.5**	.0	.0	.0	417.5	100
Oak/hickory	241.9**	109.0**	.0	.0	350.9	73
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	4,198.7	3,064.0*	382.5**	.0	7,645.2	15
Aspen/birch	313.3**	501.4**	.0	.0	814.7	43
Total, all groups	8,574.9	5,018.2	506.8	.0	14,099.9	8.2
Sampling error (percent)	14	19	58	-	8.2	
	Thousand acres					Percent
White/red pine	122.0*	29.7**	16.9**	.0	168.6	23
Spruce/fir	72.6*	70.3*	10.8**	.0	153.7	24
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	10.7**	.0	.0	.0	10.7	100
Oak/hickory	9.8**	30.4**	9.8**	.0	50.0	44
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	269.4	201.8	28.9**	.0	500.1	10
Aspen/birch	30.4**	29.4**	.0	.0	59.8	40
Total, all groups	514.9	361.6	66.4	.0	942.9	2.1
Sampling error (percent)	10	13	38	-	2.1	
	Green tons per acre[b]					
White/red pine	17.0	12.2	7.4	.0	15.2	
Spruce/fir	18.3	14.0	.0	.0	15.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	39.0	.0	.0	.0	39.0	
Oak/hickory	24.7	3.6	.0	.0	7.0	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	15.6	15.2	13.2	.0	15.3	
Aspen/birch	10.3	17.1	.0	.0	13.6	
All groups	16.7	13.9	7.6	.0	15.0	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 42.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Hillsboro County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	2,350.7	249.4**	9.0**	.0	2,609.1	17
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	29.5**	.0	.0	.0	29.5	100
Oak/hickory	342.9**	667.9*	.0	.0	1,010.8	35
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,473.4*	83.6**	.0	.0	1,557.0	35
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	4,196.5	1,000.9	9.0	.0	5,206.4	11.2
Sampling error (percent)	15	30	100	-	11.2	
	Thousand acres					Percent
White/red pine	212.5	28.2*	7.1**	.0	247.8	11
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	7.1**	.0	.0	.0	7.1	100
Oak/hickory	14.2**	56.6*	.0	.0	70.8	28
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	71.6*	20.9**	.0	.0	92.5	25
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	305.4	105.7	7.1	.0	418.2	3.3
Sampling error (percent)	8	21	100	-	3.3	
	Green tons per acre[b]					
White/red pine	11.1	8.8	1.3	.0	10.5	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	4.2	.0	.0	.0	4.2	
Oak/hickory	24.1	11.8	.0	.0	14.3	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	20.6	4.0	.0	.0	16.8	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	13.7	9.5	1.3	.0	12.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 43.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Merrimack County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,139.3*	518.0**	266.9**	.0	1,924.2	25
Spruce/fir	.0	46.7**	.0	.0	46.7	75
Hard pine	.0	133.9**	46.1**	.0	180.0	79
Oak/pine	131.5**	.0	.0	.0	131.5	73
Oak/hickory	141.7**	478.8*	.0	.0	620.5	38
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,034.7*	1,048.3*	15.6**	.0	2,098.6	21
Aspen/birch	.0	99.6**	.0	.0	99.6	74
Total, all groups	2,447.2	2,325.3	328.6	.0	5,101.1	10.6
Sampling error (percent)	19	21	46	-	10.6	
	Thousand acres					Percent
White/red pine	135.0	25.4**	36.0*	.0	196.4	15
Spruce/fir	.0	12.0**	.0	.0	12.0	73
Hard pine	.0	7.4**	7.3**	.0	14.7	71
Oak/pine	14.5**	.0	.0	.0	14.5	71
Oak/hickory	28.9*	43.8*	.0	.0	72.7	30
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	79.2*	80.4*	7.4**	.0	167.0	17
Aspen/birch	.0	14.7**	.0	.0	14.7	71
Total, all groups	257.6	183.7	50.7	.0	492.0	2.4
Sampling error (percent)	11	16	36	-	2.4	
	Green tons per acre[b]					
White/red pine	8.4	20.4	7.4	.0	9.8	
Spruce/fir	.0	3.9	.0	.0	3.9	
Hard pine	.0	18.1	6.3	.0	12.2	
Oak/pine	9.1	.0	.0	.0	9.1	
Oak/hickory	4.9	10.9	.0	.0	8.5	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	13.1	13.0	2.1	.0	12.6	
Aspen/birch	.0	6.8	.0	.0	6.8	
All groups	9.5	12.7	6.5	.0	10.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 44.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Rockingham County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	1,360.6	163.9**	.0	.0	1,524.5	21
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	159.9**	10.3**	.0	170.2	55
Oak/hickory	515.9*	48.8**	.0	.0	564.7	36
Elm/ash/red maple	.0	.0	39.4**	.0	39.4	72
Northern hardwoods	57.8**	256.1**	.0	.0	313.9	46
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	1,934.3	628.7	49.7	.0	2,612.7	11.2
Sampling error (percent)	16	30	61	-	11.2	
	Thousand acres					Percent
White/red pine	152.9	14.2**	7.0**	.0	174.1	15
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	21.6**	7.3**	.0	28.9	49
Oak/hickory	43.8*	14.6**	.0	.0	58.4	31
Elm/ash/red maple	.0	.0	8.9**	.0	8.9	75
Northern hardwoods	14.2**	29.5*	5.9**	.0	49.6	37
Aspen/birch	.0	.0	.0	.0	.0	-
Total, all groups	210.9	79.9	29.1	.0	319.9	4.5
Sampling error (percent)	10	27	42	-	4.5	
	Green tons per acre[b]					
White/red pine	8.9	11.5	.0	.0	8.8	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	7.4	1.4	.0	5.9	
Oak/hickory	11.8	3.3	.0	.0	9.7	
Elm/ash/red maple	.0	.0	4.4	.0	4.4	
Northern hardwoods	4.1	8.7	.0	.0	6.3	
Aspen/birch	.0	.0	.0	.0	.0	
All groups	9.2	7.9	1.7	.0	8.2	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 45.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Strafford County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	694.6*	105.9**	30.3**	.0	830.8	26
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	209.7**	.0	.0	.0	209.7	71
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	797.5*	220.1**	24.0**	.0	1,041.6	22
Aspen/birch	.0	52.1**	22.9**	.0	75.0	69
Total, all groups	1,701.8	378.1	77.2	.0	2,157.1	9.4
Sampling error (percent)	16	46	33	-	9.4	
	Thousand acres					Percent
White/red pine	55.6*	14.2**	5.3**	.0	75.1	25
Spruce/fir	.0	.0	.0	.0	.0	-
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	14.2**	.0	.0	.0	14.2	71
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	61.0	15.3**	5.3**	.0	81.6	19
Aspen/birch	.0	7.4**	7.3**	.0	14.7	62
Total, all groups	130.8	36.9	17.9	.0	185.6	2.0
Sampling error (percent)	12	41	42	-	2.0	
	Green tons per acre[b]					
White/red pine	12.5	7.5	5.7	.0	11.1	
Spruce/fir	.0	.0	.0	.0	.0	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	14.8	.0	.0	.0	14.8	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	13.1	14.4	4.5	.0	12.8	
Aspen/birch	.0	7.0	3.1	.0	5.1	
All groups	13.0	10.2	4.3	.0	11.6	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 46.--Net aboveground tree biomass of cull and salvable dead trees (5.0+ inches d.b.h.) on timberland, by forest-type group and stand-size class, Sullivan County, New Hampshire, 1983

Forest-type group	Stand-size class				All classes	Sampling error[a]
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand green tons					Percent
White/red pine	2,465.7*	75.6**	87.1**	.0	2,628.4	26
Spruce/fir	109.8**	.0	.0	.0	109.8	100
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	169.6**	.0	.0	.0	169.6	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	1,477.1*	959.2*	27.6**	.0	2,463.9	24
Aspen/birch	.0	3.3**	.0	.0	3.3	100
Total, all groups	4,222.2	1,038.1	114.7	.0	5,375.0	12.5
Sampling error (percent)	17	36	79	-	12.5	
	Thousand acres					Percent
White/red pine	106.2	7.3**	7.0**	.0	120.5	19
Spruce/fir	14.7**	.0	.0	.0	14.7	71
Hard pine	.0	.0	.0	.0	.0	-
Oak/pine	.0	.0	.0	.0	.0	-
Oak/hickory	7.0**	.0	.0	.0	7.0	100
Elm/ash/red maple	.0	.0	.0	.0	.0	-
Northern hardwoods	78.9*	56.8*	7.0**	.0	142.7	16
Aspen/birch	.0	7.4**	.0	.0	7.4	100
Total, all groups	206.8	71.5	14.0	.0	292.3	1.3
Sampling error (percent)	10	28	69	-	1.3	
	Green tons per acre[b]					
White/red pine	23.2	10.4	12.4	.0	21.8	
Spruce/fir	7.5	.0	.0	.0	7.5	
Hard pine	.0	.0	.0	.0	.0	
Oak/pine	.0	.0	.0	.0	.0	
Oak/hickory	24.2	.0	.0	.0	24.2	
Elm/ash/red maple	.0	.0	.0	.0	.0	
Northern hardwoods	18.7	16.9	3.9	.0	17.3	
Aspen/birch	.0	.4	.0	.0	.4	
All groups	20.4	14.5	8.2	.0	18.4	

[a]Sampling errors are expressed as a percent of the total and are included only for row and column totals. A single asterisk (*) by a cell value indicates that the estimate has an associated sampling error between 25 and 50 percent; a double asterisk (**) indicates that the estimate has an associated sampling error greater than 50 percent, and therefore is not significantly different from zero.

[b]Per acre estimates are based on the timberland area in each forest-type group and stand-size class.

Table 47.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	36,927	4,382	657	41,966	32,375	74,341
Hardwoods	92,099	13,618	1,651	107,368	19,281	126,649
Total, all species	129,026	18,000	2,308	149,334	51,656	200,990
	Thousand green tons					
Softwoods	7,069.6	4,008.1	2,634.3	13,712.0	7,856.6	21,568.6
Hardwoods	19,005.2	12,077.7	5,126.4	36,209.3	5,315.6	41,524.9
Total, all species	26,074.8	16,085.8	7,760.7	49,921.3	13,172.2	63,093.5

Table 48.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Belknap County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,298	112	27	1,437	489	1,926
Hardwoods	3,638	580	124	4,342	241	4,583
Total, all species	4,936	692	151	5,779	730	6,509
	Thousand green tons					
Softwoods	271.1	86.1	80.8	438.0	80.8	518.8
Hardwoods	680.2	429.1	357.0	1,466.3	87.7	1,554.0
Total, all species	951.3	515.2	437.8	1,904.3	168.5	2,072.8

Table 49.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Carroll County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	2,276	509	102	2,887	1,818	4,705
Hardwoods	5,975	1,676	272	7,923	1,845	9,768
Total, all species	8,251	2,185	374	10,810	3,663	14,473
	Thousand green tons					
Softwoods	476.3	459.5	478.2	1,414.0	500.6	1,914.6
Hardwoods	1,352.4	1,718.6	906.5	3,977.5	583.2	4,560.7
Total, all species	1,828.7	2,178.1	1,384.7	5,391.5	1,083.8	6,475.3

Table 50.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Cheshire County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	4,283	425	49	4,757	797	5,554
Hardwoods	10,452	1,794	113	12,359	724	13,083
Total, all species	14,735	2,219	162	17,116	1,521	18,637
	Thousand green tons					
Softwoods	780.0	413.0	186.8	1,379.8	183.0	1,562.8
Hardwoods	1,913.5	1,245.7	252.1	3,411.3	114.8	3,526.1
Total, all species	2,693.5	1,658.7	438.9	4,791.1	297.8	5,088.9

Table 51.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Coos County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	7,284	664	37	7,985	11,882	19,867
Hardwoods	20,780	2,319	227	23,326	5,402	28,728
Total, all species	28,064	2,983	264	31,311	17,284	48,595
	Thousand green tons					
Softwoods	1,517.0	697.4	162.6	2,377.0	3,113.9	5,490.9
Hardwoods	4,642.2	2,443.5	701.6	7,787.3	1,626.1	9,413.4
Total, all species	6,159.2	3,140.9	864.2	10,164.3	4,740.0	14,904.3

Table 52.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Grafton County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	3,405	752	69	4,226	12,274	16,500
Hardwoods	13,436	2,679	391	16,506	5,932	22,438
Total, all species	16,841	3,431	460	20,732	18,206	38,938
	Thousand green tons					
Softwoods	766.0	839.1	567.7	2,172.8	2,913.3	5,086.1
Hardwoods	2,939.4	2,690.0	1,417.9	7,047.3	1,966.5	9,013.8
Total, all species	3,705.4	3,529.1	1,985.6	9,220.1	4,879.8	14,099.9

Table 53.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Hillsboro County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	5,674	442	48	6,164	1,918	8,082
Hardwoods	8,974	1,225	178	10,377	617	10,994
Total, all species	14,648	1,667	226	16,541	2,535	19,076
	Thousand green tons					
Softwoods	990.2	362.8	205.9	1,558.9	282.7	1,841.6
Hardwoods	1,803.2	962.7	510.4	3,276.3	88.5	3,364.8
Total, all species	2,793.4	1,325.5	716.3	4,835.2	371.2	5,206.4

Table 54.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Merrimack County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	4,661	425	101	5,187	1,385	6,572
Hardwoods	10,425	1,164	77	11,666	1,558	13,224
Total, all species	15,086	1,589	178	16,853	2,943	19,796
	Thousand green tons					
Softwoods	882.4	323.9	289.4	1,495.7	411.0	1,906.7
Hardwoods	1,740.6	895.8	177.4	2,813.8	380.6	3,194.4
Total, all species	2,623.0	1,219.7	466.8	4,309.5	791.6	5,101.1

Table 55.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Rockingham County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	4,119	294	73	4,486	908	5,394
Hardwoods	4,830	175	13	5,018	1,187	6,205
Total, all species	8,949	469	86	9,504	2,095	11,599
	Thousand green tons					
Softwoods	617.8	231.8	209.6	1,059.2	177.4	1,236.6
Hardwoods	1,033.8	159.4	26.2	1,219.4	156.7	1,376.1
Total, all species	1,651.6	391.2	235.8	2,278.6	334.1	2,612.7

Table 56.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Strafford County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	1,186	76	15	1,277	99	1,376
Hardwoods	6,462	383	54	6,899	391	7,290
Total, all species	7,648	459	69	8,176	490	8,666
	Thousand green tons					
Softwoods	238.3	59.7	47.5	345.5	15.0	360.5
Hardwoods	1,328.0	242.8	164.4	1,735.2	61.4	1,796.6
Total, all species	1,566.3	302.5	211.9	2,080.7	76.4	2,157.1

Table 57.--Number of trees and net aboveground tree biomass of cull and salvable dead trees on timberland, by species group and diameter group, Sullivan County, New Hampshire, 1983

Species group	Diameter group (inches at breast height) of cull trees				Salvable dead trees	All cull and salvable dead trees
	5.0-10.9	11.0-20.9	21+	All diameter groups		
	Thousand trees					
Softwoods	2,741	683	136	3,560	805	4,365
Hardwoods	7,127	1,623	202	8,952	1,384	10,336
Total, all species	9,868	2,306	338	12,512	2,189	14,701
	Thousand green tons					
Softwoods	530.5	534.8	405.8	1,471.1	178.9	1,650.0
Hardwoods	1,571.9	1,290.1	612.9	3,474.9	250.1	3,725.0
Total, all species	2,102.4	1,824.9	1,018.7	4,946.0	429.0	5,375.0

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Appendix

Definition of Terms

Aboveground tree biomass. The net green weight of wood and bark in trees aboveground.

Biomass. The quantity of material in organic matter measured in terms of its weight.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality such as hawthorn or sumac.

Cull trees. Rotten trees, that is, live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs and more than 50 percent of the cull volume is rotten; rough trees, that is, live trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) noncommercial species.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground on the uphill side of the tree.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species that form a plurality of the stocking (basal area of all live trees).

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in New Hampshire were combined into the following major forest-type groups (the descriptions apply to forests in New Hampshire

a. White/red pine--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include sugar maple, red maple, red spruce, balsam fir, paper birch, and white ash.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make up a plurality of the stocking; common associates include paper birch, red

maple, aspen, white pine, hemlock, and sugar maple.

c. Hard pine--forests in which pitch pine makes up the plurality of the stocking.

d. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; hemlock, red maple, and paper birch are associates.

e. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 75 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, sugar maple, and red maple.

f. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include red maple, aspen, white ash, and gray birch.

g. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, white pine, paper birch, hemlock, white ash, aspen, and basswood.

h. Aspen/birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, red spruce, white ash, and white pine.

Green weight. The weight of wood and bark as it would be if it had been recently cut, usually expressed in pounds or tons. Net green weight equals gross weight less deductions for all unsound (rotten) material.

Growing-stock trees. Live trees of commercial species classified as either sawtimber, poletimber, saplings, or seedlings; all live trees except cull trees. While saplings and seedlings are classified as growing-stock trees, by USDA Forest Service definition, they contain no volume.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches d.b.h. and larger from a 1-foot stump height to a minimum 4.0-inch top d.o.b. of the central stem, or to the point where the central stem breaks into limbs if that occurs before it reaches this minimum diameter. Net volume equals gross volume less deduction for cull.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. For 4-foot sections, the mathematical formula is $(0.22D^2 - 0.71D)(0.904762)$; where D = diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), including the wood and bark.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nongrowing-stock biomass. The biomass in cull trees (including noncommercial tree species), salvable dead trees, saplings, stumps between ground level and a 1-foot stump height, and the tops of growing-stock trees.

Poletimber trees. Live trees of commercial species meeting regional

specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs and more than 50 percent of the cull volume is rotten.

Rough trees. Live trees that (1) do not meet regional specifications for freedom from defect primarily because of roughness or poor form, or (2) noncommercial species.

Salvable dead trees. Trees at least 5.0 inches in d.b.h. that have recently died, but still have intact bark. The trees may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 inches through 4.9 inches d.b.h.

Sawlog portion. The part of the bole of a sawtimber tree between the stump and the point on the bole above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedlings. Live trees less than 1.0-inch d.b.h. and at least 1 foot in height.

Softwoods. Coniferous trees, usually evergreen, with needles or scalelike leaves.

Stand-size class. A classification of forest land based on the size class of all live trees in the area.

a. Sawtimber stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; (2) half or more of the stocking is made up of poletimber trees, sawtimber trees, or both; and (3) the stocking of sawtimber is at least equal to that of poletimber.

b. Poletimber stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; (2) half or more of the stocking is made up of poletimber trees, sawtimber trees, or both; and (3) the stocking of poletimber exceeds that of sawtimber.

c. Sapling-seedling stand--stands of timber on forest land where (1) all live trees make up at least 10 percent of the minimum full stocking; and (2) half or more of the stocking is made up of saplings, seedlings, or both.

d. Nonstocked area--stands of timber on forest land where all live trees make up less than 10 percent of the minimum full stocking.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark. Excludes the stump-root system below the ground.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Top and branches. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches d.o.b.). It includes the uppermost stem, branches, and twigs of the tree but not the foliage.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches d.o.b., or to the point where the main stem or fork breaks into limbs.

Tree Species of New Hampshire (as encountered on field plots)

Scientific Name[a]	Common Name(s)	Occurrence[b]
	Softwoods	
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	r
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch	r
Picea glauca (Moench) Voss	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	r
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. rigida Mill.	pitch pine	c
P. strobus L.	eastern white pine	vc
Thuja occidentalis L.	northern white-cedar	r
Tsuga canadensis (L.) Carr.	eastern hemlock	vc
	Hardwoods	
Acer pensylvanicum L.[c]	striped maple, moosewood	r
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	vr
A. saccharum Marsh.	sugar, rock or hard maple	vc
A. spicatum Lam.[c]	mountain maple	vr
Betula alleghaniensis Britton	yellow birch	vc
B. lenta L.	sweet, black, or cherry birch	c
B. papyrifera Marsh.	paper, white or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carya spp. Nutt.	hickory	r
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black or brown ash	r
F. pennsylvanica Marsh.	green or red ash	vr
Juglans cinera L.	butternut	r
Malus spp. Mill.[c]	apple	r
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam, ironwood	r
Populus balsamifera L.	balsam poplar	r
P. grandidentata Michx.	bigtooth aspen, poplar, popple	c
P. tremuloides Michx.	quaking or trembling aspen	c
Prunus pensylvanica L.F.[c]	pin or fire cherry	r
P. serotina Ehrh.	black cherry	c
Quercus alba L.	white oak	c
Q. coccinea Muenchh.	scarlet oak	r
Q. prinus L.	chestnut oak	r
Q. rubra L.	northern red oak	vc
Q. velutina Lam.	black oak	c

Tree Species (Cont'd)

Scientific Name[a]	Common Name(s)	Occurrence[b]
Salix spp.	willows	vr
Tilia americana L.	american basswood	r
Ulmus americana L.	american elm	r

[a]Names according to: Little, Elbert L., Jr. Checklist of United States Trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 P.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

[c]Noncommercial species.

Conversions and Metric Equivalents

1 acre = 4,046.86 square meters or 0.404686 hectares
1 board foot[a] = 0.00348 cubic meters or 3,480 cubic centimeters
1 cubic foot = 0.028317 cubic meters
1 cord (wood, bark, and airspace) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters or 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare
1 ton = 907.1848 kilograms
1,000 tons = 907.1848 metric tons

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[a]While 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate, using a conversion, will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (d.i.b.) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Since the board-foot unit is not a true measure of wood volume, and since products other than dimension lumber are becoming important, this unit may eventually be phased out and replaced with the cubic meter unit.

List of Available Biomass Tables

The following biomass tables are on microfiche. These tables are available at the state, geographic unit, and county level. Copies of fiche or photocopies of particular tables can be obtained by calling or writing

USDA Forest Service
Forest Inventory, Analysis, and Economics
370 Reed Road
Broomall, PA 19008
(215)461-3037

Table Number	Table description
9000	Softwood aboveground biomass by diameter class land stand-size class.
9001	Hardwood aboveground biomass by diameter class and stand-size class.
9010	Net weight (tons) of cull and salvable dead trees on timberland by component type of tree and softwoods/hardwoods.
9020	Net weight (tons) of all live trees on timberland by components and age class.
9030	Net weight (tons) of merchantable stem of growing stock trees on timberland by species and diameter class.
9050	Net weight (tons) of all live trees on timberland by forest type and stand-size class.
9051	Net weight (tons) of all live trees on timberland by forest-type group and stand-size class.
9060	Net weight (tons) per acre of all live trees on timberland by forest type and stand-size classes.
9090	Net weight (tons) of cull and salvable dead trees on timberland by forest-type group and stand-size class.
9100	Net weight (tons) per acre of cull and salvable dead trees on timberland by forest-type group and stand-size class.
9120	Net weight (tons) of all live trees on timberland by timber management class and stand area class.

9130	Net weight (tons) per acre of all live trees on timberland by timber management and stand area classes.
9150	Net weight (tons) of all live trees on timberland by timber management class and forest-type group.
9160	Net weight (tons) of all trees on timberland by class of materials and softwoods and hardwoods.
9170	Net weight (tons) of all live trees on timberland by species and diameter class.
9171	Net weight (tons) of all live trees on timberland by species and diameter group.
9172	Net weight (tons) of cull and salvable dead trees 5"+ on timberland by species group and diameter group.
9180	Net weight (tons) of growing stock trees on timberland by species and diameter class .
9190	Net weight per acre of all live trees on timberland by timber management class and forest-type group.

. GOVERNMENT PRINTING OFFICE:1986-605-026 / 40024

Frieswyk, Thomas S.; Malley, Anne M. Biomass statistics for New Hampshire--1983. Resour. Bull. NE-92. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 85 p.

A statistical report on the fourth forest survey of New Hampshire (1983). Findings are displayed in 72 tables containing estimates of forest area, numbers of trees, tree biomass and timber volume. Data is presented by state and county level.

ODC 536 (742)

Keywords: Forest survey, inventory, area, volume, biomass.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

- Amherst, Massachusetts, in cooperation with the University of Massachusetts.
- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
- Delaware, Ohio.
- Durham, New Hampshire, in cooperation with the University of New Hampshire.
- Hamden, Connecticut, in cooperation with Yale University.
- Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.
- Orono, Maine, in cooperation with the University of Maine, Orono.
- Parsons, West Virginia.
- Princeton, West Virginia.
- Syracuse, New York, in cooperation with the State University of New York College of Environmental Sciences and Forestry at Syracuse University, Syracuse.
- University Park, Pennsylvania, in cooperation with the Pennsylvania State University.
- Warren, Pennsylvania.

United States
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Pulpwood Production in the Northeast--1984

Richard H. Widmann

Abstract

Pulpwood production and receipts for the 14 states in the Northeast Region reached a new high in 1984--a 5 percent (401,600 cords) increase over 1983 production brought total production up to 9,006,600 cords. Increases in both the roundwood harvest and use of manufacturing residues accounted for the record high. Roundwood production rose 318,800 cords or 5 percent to reach 6,648,800 cords, while the use of residues rose 82,800 cord equivalents or 4 percent, totaling 2,357,800 cord equivalents. These also were all-time highs for the Northeast Region.

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Northeastern Forest Experiment Station
370 Reed Road, Broomall, PA 19008
October 1986

Pulpwood Production in the Northeast--1984

Richard H. Widmann

Introduction

This annual report is based on a canvass of all pulpmills in the Northeast that use wood as a basic raw material to make pulp for the production of paper, insulation board, and hardboard products. Shipments outside the Northeast Region are traced by exchanging information with neighboring forest experiment stations that conduct similar canvasses, and by canvassing pulpmills in adjacent Canadian provinces.

The statistics for production are based on mill receipts of roundwood and manufacturing plant residues.[1] These receipts are subject to year-to-year fluctuations in wood inventory. Mill receipts of pulpwood from roundwood are reported by county where harvested. However, pulpwood from plant residues cannot be traced beyond the state where the residues were produced. Some of the logs from which the residues came probably were harvested in states other than the one in which they were processed.

Wood not reported in standard cords on pulpwood production questionnaires is converted. Conversion factors for a specific mill, if available, are used. Otherwise, general conversion factors for the Northeast are used.

Highlights

Pulpwood production continued to increase in the 14 Northeastern states--Connecticut, Delaware, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia--during 1984, establishing a new record of 9,006,600 cords (Table 1). This represented an additional 5 percent or 401,600 cords more than the previous high set in 1983.[2] Since 1978, production has been stable with modest gains occurring regularly (Fig. 1). Increases in both the roundwood harvest and use of manufacturing residues accounted for the record high. Roundwood production rose 318,800 cords or 5 percent to reach 6,648,800 cords, while the use of residues rose 82,800 cord equivalents or 4 percent, totaling 2,357,800 cord equivalents. These also were all-time highs for the Northeast Region.

The additional production was not distributed evenly among the Northeastern States. Seven states recorded advances in production, with a combined increase totaling 480,600 cords, and seven states showed declines, with a combined decrease totaling 79,000 cords. The northern New England states all showed substantial gains: New Hampshire up 12 percent, Maine 6 percent, and Vermont 5 percent. Maine's production increase was the largest. After a 4 percent decrease in 1983, Maine's 1984 production rebounded 6 percent to total 4,283,400 cords.

The other states to show increases were: Ohio up 9 percent, Maryland 18 percent, and West Virginia 11.5 percent. This was the fourth consecutive year that Maryland and Ohio had production gains, and now production in each of these states is at record levels. Also, Rhode Island recorded pulpwood production for the first time since 1978.

Over half of the decrease in production occurred in two states: Pennsylvania and Kentucky each down 3 percent. These losses were preceded by gains in 1983, and production remains at historically high levels in these states. Other states to show declines were: Connecticut down 26 percent, Delaware 10 percent, Massachusetts 26 percent, New York 1 percent, and New Jersey 53 percent. The decrease in New Jersey was caused by the closing of a mill.

The 5 percent increase in roundwood production in 1984 was entirely due to increases in the softwood harvest (Table 3). Hardwood roundwood production fell 1 percent. The production of spruce and fir gained 198,600 cords. This was 11 percent more than 1983, but did not bring spruce and fir production up to the high levels reached in 1980, 1981, and 1982. The harvest of hemlock and tamarack rose 26 percent in 1984 to 569,400 cords. This was a continuation of the increases the hemlock-tamarack species group has made in recent years. Production of pulp from this group has doubled since 1979. The pine roundwood harvest rose 19 percent in 1984. This 54,700-cord increase brought pine production up to 616,800 cords. Although the pine harvest has increased in recent years, it is still shy of the 628,700 cords it reached in 1967.

Manufacturing residues accounted for 26 percent of the total pulpwood production. These residues were generated from the slabs and edgings at sawmills and from byproducts at other wood-using plants. All of the 82,800-cord increase in 1984 residue production came from a 12 percent rise in hardwood residues (Table 4). The softwood portion of residues declined 6 percent. During the last 5 years, hardwood

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[1] Definitions of terms used in this report are in the Appendix. Note that whole-tree chips are included as roundwood.

[2] Production figures for 1983 were revised. New York residue production was lowered from 206,200 cords to 137,400 cords. This brought total pulpwood production for the Northeast down to 8,605,000 cords.

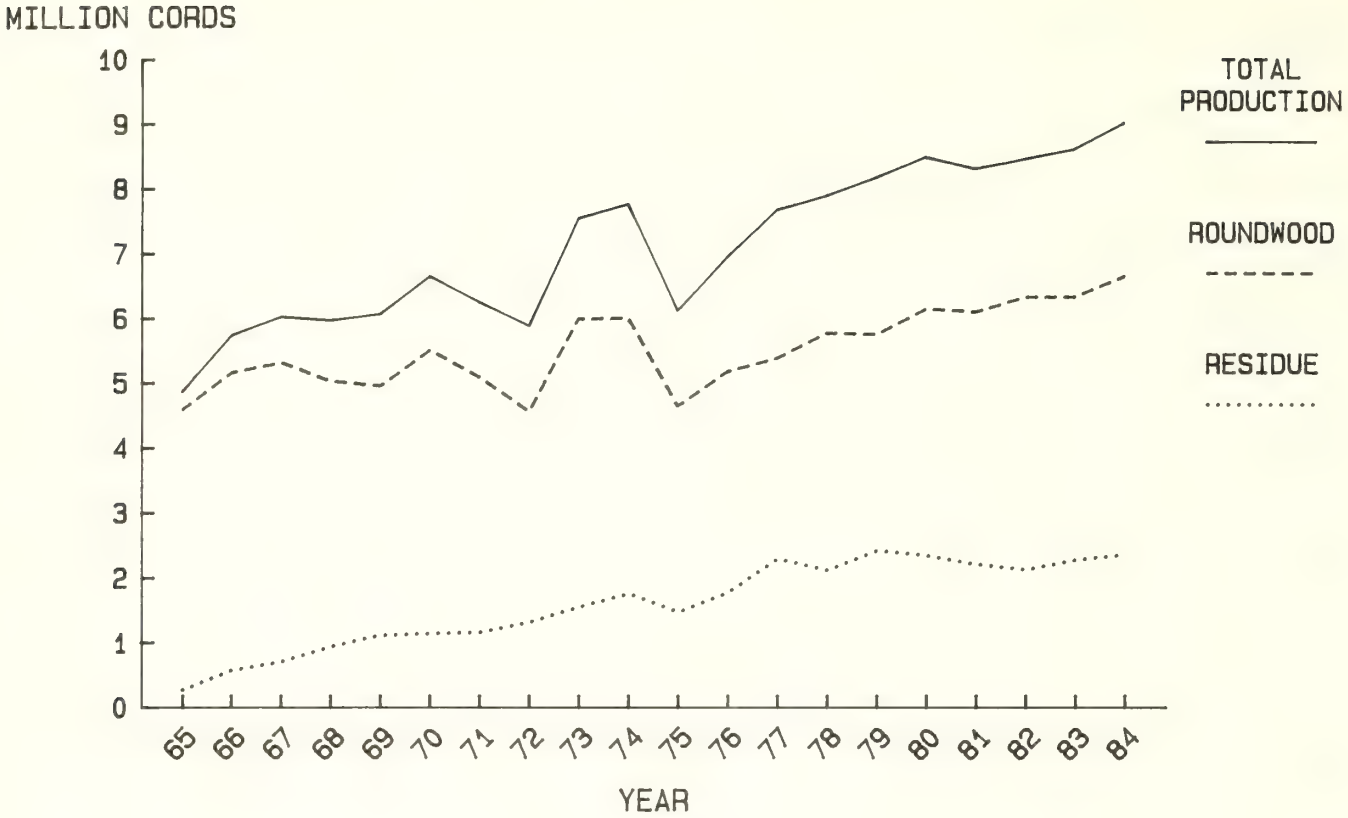

Figure 1.--Total roundwood, and manufacturing residue and production for the Northeast.

residues have accounted for over half the total residues. In 1984, hardwoods accounted for 56 percent of the residues produced in the Northeast.

The production of whole-tree chips rose slightly in 1984. This minor change indicates that production of whole-tree chips has generally leveled off. In 1984, one additional mill received whole-tree chips, bringing the total number of mills in the Northeast that receive some whole-tree chips to 11. Recently, strong emphasis has been placed on producing higher quality pulps. Because whole-tree chips generally produce poorer quality pulps, it is doubtful that there will be any large increases in whole-tree chip production for pulp in the Northeast.

Consumption of pulpwood at the 41 mills in the Northeast Region increased by 318,400 cords during 1984. Higher receipts of roundwood were responsible for all of this gain, while the receipts of pulpwood produced from manufacturing residues remained unchanged. During this time, the Northeast remained a net importer of wood, but net imports fell to a 14-year low (Table 2).

Appendix

Definition of Terms

Cord. See Standard Cord.

Cord equivalent. A unit of measure that is applied to forms of wood other than roundwood, such as chips, slabs, edgings, and other manufacturing residues and equal to 85 cubic feet of solid wood or 1 cord.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Manufacturing plant residues. Wood materials, such as sawmill slabs and edgings, sawdust, veneer clippings and cores, post and pole trimming, and pulp screening generated from the manufacture of roundwood products.

Pulpwood. Roundwood, whole-tree chips, or manufacturing plant residues that are used for the production of woodpulp.

Pulpwood production. Roundwood and manufacturing plant residues used to make up woodpulp. These are either harvested or generated in the state or region.

Pulpwood receipts. Pulpwood received at woodpulp mills. These can originate from outside the state or region.

Pulpwood imports. Pulpwood receipts originating from outside the Northeast (14-state region).

Roundwood products. Logs, bolts, total-tree chips, mine timbers, fence posts, poles, and similar timber products generated by harvesting trees for industrial or consumer use.

Softwoods. Coniferous trees, usually evergreen with needles or scalelike leaves.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. In the Northeast, the measure refers to a stack of wood containing 85 cubic feet, or 2.41 cubic meters, of solid wood. A standard cord commonly is referred to as a cord, as in this report. This is not the same as a face cord, commonly used in firewood marketing.

Timber products output. Production total from timber harvest and plant byproducts.

Whole-tree chips. Unbarked wood chips generated from the aboveground portion of a tree, including bolewood, limbs, and leaves.

Metric Equivalents

One standard cord = 85 cubic feet (solid wood) = 2.41 cubic meters (solid wood).

One cubic foot = 28,317 cubic centimeters = 0.028 cubic meters.

Conversion Factors Used for Green Roundwood

1 ton spruce-fir = 0.5556 cords
1 ton hemlock-tamarack = 0.5000 cords
1 ton pine (New England, New York, and Canada) = 0.5263 cords
1 ton aspen--yellow-poplar = 0.5263 cords
1 ton oak-hickory = 0.3571 cords
1 ton other hardwoods = 0.3846 cords

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Table 1.-Total production of pulpwood in the Northeast, by state and source, 1984

(In thousands of standard cords)[a]

State	From roundwood	From manufacturing residues	From all sources
Connecticut	3.0	3.9	6.9
Delaware	24.5	1.1	25.6
Kentucky	122.7	382.7	505.4
Maine	3,617.7	665.7	4,283.4
Maryland	158.5	202.8	361.3
Massachusetts	10.8	18.5	29.3
New Hampshire	369.4	215.7	585.1
New Jersey	5.3	-	5.3
New York	713.0	136.3	849.3
Ohio	366.7	136.0	502.7
Pennsylvania	681.5	345.9	1,027.4
Rhode Island	-	1.6	1.6
Vermont	331.2	57.9	389.1
West Virginia	244.5	189.7	434.2
Total	6,648.8	2,357.8	9,006.6

[a] Rough wood basis, equivalent to 85 ft^3 solid wood.

Table 2.-Production and receipts of pulpwood in the Northeast, by state and softwood and hardwood, 1984

(In thousands of standard cords)

State	Produced in state		Received in state		Net export(+) import(-)
	Softwood	Hardwood	Softwood	Hardwood	
Connecticut	4.7	2.2	-	-	6.9
Delaware	23.0	2.6	-	-	25.6
Kentucky	16.5	488.9	102.3	849.4	-446.3
Maine	2,873.5	1,409.9	3,154.0	1,618.6	-489.2
Maryland	246.5	114.8	(D)	(D)	(D)
Massachusetts	20.0	9.3	-	-	29.3
New Hampshire	308.9	276.2	127.6	355.5	102.0
New Jersey	5.3	-	5.7	-	-.4
New York	404.9	444.4	548.7	319.0	-18.4
Ohio	12.7	490.0	13.6	594.6	-105.5
Pennsylvania	86.1	941.3	239.0	1,017.6	-229.2
Rhode Island	.3	1.3	-	-	1.6
Vermont	208.6	180.5	(D)	(D)	(D)
West Virginia	55.6	378.6	-	-	434.2
Total	4,266.6	4,740.0	4,408.4	5,094.9	-496.7

(D) Data withheld to avoid disclosure for individual mills.

Table 3.-Pulpwood production from roundwood in the Northeast, by state, softwood and hardwood, and destination of shipment, 1984

(In thousands of standard cords)

State	Softwood				Hardwood				All species
	Retained in state	Shipped to other states		Total	Retained in state	Shipped to other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Connecticut	-	3.0	-	3.0	-	-	-	-	3.0
Delaware	-	18.5	4.4	22.9	-	1.5	0.1	1.6	24.5
Kentucky	6.7	-	7.3	14.0	96.1	8.8	3.8	108.7	122.7
Maine	2,224.6	16.2	30.4	2,271.2	1,329.9	16.6	-	1,346.5	3,617.7
Maryland	32.0	38.3	23.3	93.6	56.7	8.0	.2	64.9	158.5
Massachusetts	-	7.0	-	7.0	-	3.8	-	3.8	10.8
New Hampshire	32.8	110.8	.9	144.5	153.1	71.8	-	224.9	369.4
New Jersey	5.1	.2	-	5.3	-	-	-	-	5.3
New York	357.2	.2	1.0	358.4	257.6	19.9	77.1	354.6	713.0
Ohio	-	1.5	-	1.5	365.0	.2	-	365.2	366.7
Pennsylvania	47.6	24.2	-	71.8	571.4	38.3	-	609.7	681.5
Rhode Island	-	-	-	-	-	-	-	-	-
Vermont	16.0	151.4	3.9	171.3	-	159.9	-	159.9	331.2
West Virginia	-	44.9	9.4	54.3	-	94.2	96.0	190.2	244.5
Total	2,722.0	416.2	80.6	3,218.8	2,829.8	423.0	177.2	3,430.0	6,648.8

Table 4.-Pulpwood chip production from manufacturing residues in the Northeast, by state, softwood and hardwood, and destination of shipment, 1984[a]

(In thousands of standard-cord equivalents)

State	Softwood				Hardwood				All species
	Produced and retained in state	Shipped to other states		Total	Produced and retained in state	Shipped to other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Connecticut	-	1.7	-	1.7	-	2.2	-	2.2	3.9
Delaware	-	.1	-	.1	-	1.0	-	1.0	1.1
Kentucky	2.5	-	-	2.5	300.3	49.0	30.9	380.2	382.7
Maine	529.1	3.7	69.5	602.3	51.5	2.8	9.1	63.4	665.7
Maryland	18.0	66.5	68.4	152.9	10.0	39.9	-	49.9	202.8
Massachusetts	-	13.0	-	13.0	-	5.5	-	5.5	18.5
New Hampshire	61.0	103.4	-	164.4	41.8	9.5	-	51.3	215.7
New Jersey	-	-	-	-	-	-	-	-	-
New York	45.1	1.4	-	46.5	25.7	58.4	5.7	89.8	136.3
Ohio	11.2	-	-	11.2	124.4	.4	-	124.8	136.0
Pennsylvania	11.5	2.8	-	14.3	281.5	50.1	-	331.6	345.9
Rhode Island	-	.3	-	.3	-	1.3	-	1.3	1.6
Vermont	-	37.3	-	37.3	-	20.6	-	20.6	57.9
West Virginia	-	.4	.9	1.3	-	83.8	104.6	188.4	189.7
Total	678.4	230.6	138.8	1,047.8	835.2	324.5	150.3	1,310.0	2,357.8

[a]Includes sawmill slabs and edgings, sawdust, veneer cores, and post and piling trimmings.

Table 5.-Pulpwood receipts from roundwood in the Northeast, by state, softwood and hardwood, and origin of shipment, 1984

(In thousands of standard cords)

State[a]	Softwood				Hardwood				All species
	Cut in state	Received from other states		Total	Cut in state	Received from other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Kentucky	6.7	-	60.4	67.1	96.1	-	129.0	225.1	292.2
Maine	2,224.6	152.0	65.9	2,442.5	1,329.9	83.3	138.4	1,551.6	3,994.1
Maryland	32.0	(D)	(D)	(D)	56.7	(D)	(D)	(D)	(D)
New Hampshire	32.8	23.8	-	56.6	153.1	157.0	-	310.1	366.7
New Jersey	5.1	.6	-	5.7	-	-	-	-	5.7
New York	357.2	114.7	1.3	473.2	257.6	11.9	-	269.5	742.7
Ohio	-	-	-	-	365.0	26.9	-	391.9	391.9
Pennsylvania	47.6	57.6	51.4	156.6	571.4	29.5	11.3	612.2	768.8
Vermont	16.0	(D)	(D)	(D)	-	(D)	(D)	(D)	(D)
Total	2,722.0	416.2	229.8	3,368.0	2,829.8	423.0	329.3	3,582.1	6,950.1

[a]States with no pulpmills are omitted. (D)Data withheld to avoid disclosure for individual mills.

Table 6.-Pulpwood chip receipts from manufacturing residues in the Northeast, by state, softwood and hardwood, and origin of shipment, 1984[a]

(In thousands of standard cord equivalents)

State[b]	Softwood				Hardwood				All species
	Produced in state	Received from other states		Total	Produced in state	Received from other states		Total	
		In Northeast	Outside Northeast			In Northeast	Outside Northeast		
Kentucky	2.5	-	32.7	35.2	300.3	-	324.0	624.3	659.5
Maine	529.1	119.1	63.3	711.5	51.5	14.6	.9	67.0	778.5
Maryland	18.0	(D)	(D)	(D)	10.0	(D)	(D)	(D)	(D)
New Hampshire	61.0	10.0	-	71.0	41.8	3.6	*	45.4	116.4
New Jersey	-	-	-	-	-	-	-	-	-
New York	45.1	30.3	.1	75.5	25.7	23.8	-	49.5	125.0
Ohio	11.2	2.4	-	13.6	124.4	70.3	8.0	202.7	216.3
Pennsylvania	11.5	67.9	3.0	82.4	281.5	110.0	13.9	405.4	487.8
Vermont	-	(D)	(D)	(D)	(D)	-	(D)	(D)	(D)
Total	678.4	230.6	131.4	1,040.4	835.2	324.5	353.1	1,512.8	2,553.2

[a]Includes sawmill slabs and edgings, sawdust, veneer cores, and post and pole trimmings.

[b]States with no pulpmills are omitted. *Less than 50 cords. (D)Data withheld to avoid disclosure of data from individual mills.

Table 7.-Pulpwood production from roundwood received from states outside the Northeast, by state (or province) of origin and softwood and hardwood, 1984

(In thousands of standard cords)

Receiving state[a]	State or province of origin	Softwood	Hardwood	All species
Kentucky	Illinois	15.7	14.6	30.3
	Indiana	-	8.6	8.6
	Mississippi	33.2	72.5	105.7
	Missouri	1.1	10.0	11.1
	Tennessee	10.4	23.3	33.7
Maine	New Brunswick	18.0	121.7	139.7
	Quebec	47.9	16.7	64.6
Maryland	Virginia	50.8	50.6	101.4
New York	Ontario	.1	-	.1
	Quebec	1.2	-	1.2
Pennsylvania	Virginia	51.4	11.3	62.7
All States		229.8	329.3	559.1

[a]States with no extraregional receipts are omitted.

Table 8.-Pulpwood chip receipts from wood-using manufacturing plants outside the Northeast, by state (or province) of origin and softwood and hardwood, 1984[a]

(In thousands of standard cord equivalents)

Receiving state[b]	State or province of origin	Softwood	Hardwood	All species
Kentucky	Alabama	-	3.5	3.5
	Arkansas	0.2	4.2	4.4
	Illinois	.1	17.8	17.9
	Indiana	-	116.3	116.3
	Mississippi	28.6	26.8	55.4
	Missouri	2.2	39.5	41.7
	Tennessee	1.6	115.9	117.5
Maine	New Brunswick	22.4	-	22.4
	Quebec	40.9	.9	41.8
Maryland	Virginia	32.3	6.3	38.6
New Hampshire	Quebec	-	*	*
New York	Quebec	.1	-	.1
Ohio	Indiana	-	8.0	8.0
Pennsylvania	Virginia	3.0	13.9	16.9
All states		131.4	353.1	484.5

[a]Includes sawmill slabs and edgings, sawdust, veneer cores, and post and piling trimmings.
[b]States with no extraregional receipts are omitted.
*Less than 50 cords.

Table 9.-Pulpwood production from roundwood in the Northeast, by state and species group, 1984

(In thousands of standard cords)

State	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Connecticut	-	3.0	*	3.0	-	-	-	.0	3.0
Delaware	-	-	22.9	22.9	-	-	1.6	1.6	24.5
Kentucky	-	-	14.0	14.0	10.1	80.8	17.8	108.7	122.7
Maine	1,722.5	304.2	244.5	2,271.2	254.1	40.1	1,052.3	1,346.5	3,617.7
Maryland	-	2.0	91.6	93.6	-	30.0	34.9	64.9	158.5
Massachusetts	.8	5.3	.9	7.0	1.7	.7	1.4	3.8	10.8
New Hampshire	82.8	31.6	30.1	144.5	43.5	6.2	175.2	224.9	369.4
New Jersey	-	-	5.3	5.3	-	-	-	.0	5.3
New York	118.0	157.4	83.0	358.4	34.5	5.8	314.3	354.6	713.0
Ohio	-	-	1.5	1.5	3.2	258.1	103.9	365.2	366.7
Pennsylvania	-	17.9	53.9	71.8	28.2	233.1	348.4	609.7	681.5
Rhode Island	-	-	-	-	-	-	-	-	-
Vermont	108.5	42.4	20.4	171.3	13.2	.6	146.1	159.9	331.2
West Virginia	-	5.6	48.7	54.3	*	48.1	142.1	190.2	244.5
Total	2,032.6	569.4	616.8	3,218.8	388.5	703.5	2,338.0	3,430.0	6,648.8

*Less than 50 cords.

Table 10.-Pulpwood production from roundwood in Kentucky and Ohio, by county and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
					KENTUCKY				
Ballard	-	-	-	-	0.6	1.4	1.1	3.1	3.1
Butler	-	-	-	-	-	4.9	-	4.9	4.9
Caldwell	-	-	0.6	0.6	1.3	2.9	2.1	6.3	6.9
Calloway	-	-	1.4	1.4	.3	.7	.5	1.5	2.9
Carlisle	-	-	-	-	1.6	.8	.4	2.8	2.8
Carter	-	-	-	-	-	3.6	.4	4.0	4.0
Casey	-	-	-	-	-	3.1	-	3.1	3.1
Crittenden	-	-	.4	.4	1.2	2.7	2.1	6.0	6.4
Fleming	-	-	-	-	-	.2	.2	.4	.4
Fulton	-	-	-	-	.4	.9	.7	2.0	2.0
Graves	-	-	3.5	3.5	.9	1.9	1.4	4.2	7.7
Greenup	-	-	-	-	-	4.3	-	4.3	4.3
Harlan	-	-	-	-	-	-	2.4	2.4	2.4
Hickman	-	-	-	-	.3	.7	.5	1.5	1.5
Laurel	-	-	-	-	-	14.5	-	14.5	14.5
Lewis	-	-	-	-	-	.2	-	.2	.2
Livingston	-	-	.5	.5	1.2	2.6	1.9	5.7	6.2
Lyon	-	-	.4	.4	1.3	3.0	2.3	6.6	7.0
McCracken	-	-	-	-	.2	.4	.3	.9	.9
McCreary	-	-	2.1	2.1	-	-	.1	.1	2.2
Ohio	-	-	-	-	-	28.9	-	28.9	28.9
Trigg	-	-	-	-	.8	1.8	1.4	4.0	4.0
Whitley	-	-	5.1	5.1	-	1.3	*	1.3	6.4
Total	-	-	14.0	14.0	10.1	80.8	17.8	108.7	122.7

(Continued)

Table 10.-continued

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
					OHIO				
Adams	-	-	-	-	0.6	6.8	2.3	9.7	9.7
Ashland	-	-	-	-	-	1.2	.7	1.9	1.9
Ashtabula	-	-	-	-	-	.2	.3	.5	.5
Athens	-	-	*	*	.3	4.8	2.4	7.5	7.5
Belmont	-	-	-	-	-	5.9	3.2	9.1	9.1
Carroll	-	-	-	-	-	.3	.1	.4	.4
Columbiana	-	-	-	-	-	8.8	4.8	13.6	13.6
Fairfield	-	-	-	-	*	.3	.1	.4	.4
Fayette	-	-	-	-	*	*	*	*	*
Gallia	-	-	*	*	*	.2	.1	.3	.3
Guernsey	-	-	-	-	-	10.3	5.6	15.9	15.9
Harrison	-	-	-	-	-	3.9	2.1	6.0	6.0
Highland	-	-	-	-	-	.3	.4	.7	.7
Hocking	-	-	*	*	.5	11.2	3.5	15.2	15.2
Holmes	-	-	-	-	-	2.3	1.2	3.5	3.5
Jackson	-	-	-	-	.1	29.4	8.1	37.6	37.6
Jefferson	-	-	-	-	-	2.4	1.3	3.7	3.7
Knox	-	-	-	-	-	.3	.1	.4	.4
Lawrence	-	-	-	-	.3	3.4	2.6	6.3	6.3
Licking	-	-	-	-	-	.2	.3	.5	.5
Medina	-	-	-	-	-	.3	.1	.4	.4
Meigs	-	-	1.5	1.5	*	.1	*	.1	1.6
Monroe	-	-	-	-	-	.1	.1	.2	.2
Morgan	-	-	-	-	.1	.2	.1	.4	.4
Muskingum	-	-	-	-	.1	7.3	3.9	11.3	11.3
Noble	-	-	-	-	*	11.8	6.4	18.2	18.2
Perry	-	-	-	-	.4	3.7	1.6	5.7	5.7
Pickaway	-	-	-	-	*	.1	.1	.2	.2
Pike	-	-	-	-	.1	27.1	7.8	35.0	35.0
Richland	-	-	-	-	-	.7	.3	1.0	1.0
Ross	-	-	-	-	.2	35.3	6.0	41.5	41.5
Scioto	-	-	-	-	.1	22.1	15.6	37.8	37.8
Stark	-	-	-	-	-	3.7	2.0	5.7	5.7
Tuscarawas	-	-	-	-	-	7.0	3.7	10.7	10.7
Union	-	-	-	-	*	.1	.1	.2	.2
Vinton	-	-	-	-	.4	45.4	16.5	62.3	62.3
Washington	-	-	*	*	*	.8	.4	1.2	1.2
Wayne	-	-	-	-	-	.1	*	.1	.1
Total	-	-	1.5	1.5	3.2	258.1	103.9	365.2	366.7

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 11.-Pulpwood production from roundwood in southern New England, by state, county, and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
				CONNECTICUT					
Fairfield	-	*	-	*	-	-	-	-	*
Hartford	-	.8	-	0.8	-	-	-	-	0.8
Litchfield	-	1.5	*	1.5	-	-	-	-	1.5
Windham	-	.7	-	.7	-	-	-	-	.7
Total	-	3.0	*	3.0	-	-	-	-	3.0
				MASSACHUSETTS					
Barnstable	-	-	0.1	0.1	-	-	*	*	0.1
Berkshire	0.8	1.1	.5	2.4	-	-	0.1	0.1	2.5
Bristol	-	-	-	-	0.1	*	*	.1	.1
Essex	*	-	-	-	.3	0.1	.2	.6	.6
Franklin	-	.8	-	.8	.2	*	.2	.4	1.2
Hampden	-	.3	-	.3	-	-	-	-	.3
Hampshire	-	1.9	.1	2.0	-	-	-	-	2.0
Middlesex	-	-	.2	.2	.5	.4	.4	1.3	1.5
Norfolk	-	-	-	-	.1	.1	.1	.3	.3
Worcester	-	1.2	-	1.2	.5	.1	.4	1.0	2.2
Total	0.8	5.3	0.9	7.0	1.7	0.7	1.4	3.8	10.8

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 12.-Pulpwood production from roundwood in northern New England, by state, county, and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
				MAINE					
Androscoggin	3.2	4.3	21.6	29.1	2.8	0.8	6.2	9.8	38.9
Aroostook	355.9	15.9	3.2	375.0	25.2	1.1	121.4	147.7	522.7
Cumberland	2.3	5.3	26.2	33.8	12.3	3.2	11.8	27.3	61.1
Franklin	111.8	23.7	17.0	152.5	20.4	12.9	103.1	136.4	288.9
Hancock	47.5	6.7	.9	55.1	2.3	.5	26.1	28.9	84.0
Kennebec	10.4	18.2	26.6	55.2	4.9	.7	16.7	22.3	77.5
Knox	9.9	2.2	4.0	16.1	.6	.2	1.3	2.1	18.2
Lincoln	6.7	5.6	16.1	28.4	.6	.4	3.8	4.8	33.2
Oxford	84.9	31.5	33.3	149.7	46.5	7.1	139.1	192.7	342.4
Penobscot	208.5	62.6	18.7	289.8	26.2	6.6	156.9	189.7	479.5
Piscataquis	337.1	43.8	11.0	391.9	13.8	4.1	127.7	145.6	537.5
Sagadahoc	1.7	2.2	7.8	11.7	.5	.7	.9	2.1	13.8
Somerset	463.5	66.0	25.6	555.1	35.1	.3	154.7	190.1	745.2
Waldo	30.2	2.9	4.1	37.2	2.6	.2	5.4	8.2	45.4
Washington	48.7	10.4	4.1	63.2	56.5	.3	173.5	230.3	293.5
York	.2	2.9	24.3	27.4	3.8	1.0	3.7	8.5	35.9
Total	1,722.5	304.2	244.5	2,271.2	254.1	40.1	1,052.3	1,346.5	3,617.7
				NEW HAMPSHIRE					
Belknap	0.2	1.0	3.0	4.2	1.2	0.3	1.0	2.5	6.7
Carroll	4.4	8.0	14.3	26.7	16.4	4.2	23.3	43.9	70.6
Cheshire	*	5.2	.1	5.3	.1	*	.1	.2	5.5
Coos	70.2	2.4	2.5	75.1	16.5	.4	109.7	126.6	201.7
Grafton	8.0	8.2	7.3	23.5	7.4	.8	39.6	47.8	71.3
Hillsborough	-	0.8	.1	.9	.5	.2	.4	1.1	2.0
Merrimack	-	1.0	.2	1.2	.5	.1	.4	1.0	2.2
Rockingham	*	.6	.8	1.4	.5	.1	.3	.9	2.3
Strafford	*	.9	1.8	2.7	.3	.1	.4	.8	3.5
Sullivan	-	3.5	-	3.5	.1	-	*	.1	3.6
Total	82.8	31.6	30.1	144.5	43.5	6.2	175.2	224.9	369.4
				VERMONT					
Addison	0.7	0.2	*	0.9	-	-	0.1	0.1	1.0
Bennington	.6	.9	1.3	2.8	*	-	3.5	3.5	6.3
Caledonia	25.3	6.5	6.9	38.7	2.4	0.1	26.2	28.7	67.4
Chittenden	1.3	.7	.9	2.9	-	-	.6	.6	3.5
Essex	45.1	3.7	2.7	51.5	8.3	.4	90.6	99.3	150.8
Franklin	1.9	3.9	.8	6.6	.3	*	2.4	2.7	9.3
Lamoille	3.3	2.3	.5	6.1	*	-	1.1	1.1	7.2
Orange	4.5	2.2	1.0	7.7	.1	-	.4	.5	8.2
Orleans	17.3	11.8	1.2	30.3	1.8	.1	13.9	15.8	46.1
Rutland	1.5	2.1	2.3	5.9	.1	-	1.4	1.5	7.4
Washington	2.1	.6	.8	3.5	.1	-	.8	.9	4.4
Windham	2.4	5.8	1.1	9.3	*	-	3.4	3.4	12.7
Windsor	2.5	1.7	.9	5.1	.1	-	1.7	1.8	6.9
Total	108.5	42.4	20.4	171.3	13.2	0.6	146.1	159.9	331.2

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 13.-Pulpwood production from roundwood in New York, by county and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Albany	0.3	2.6	0.3	3.2	-	-	0.5	0.5	3.7
Allegany	-	-	1.0	1.0	-	1.3	-	1.3	2.3
Broome	.1	4.2	*	4.3	0.7	1.7	3.1	5.5	9.8
Cattaraugus	-	-	-	-	-	1.1	1.6	2.7	2.7
Cayuga	.7	-	-	.7	-	-	-	-	.7
Chautauqua	-	-	-	-	-	-	3.5	3.5	3.5
Chemung	-	-	-	-	.4	.6	1.2	2.2	2.2
Chenango	6.5	2.6	.2	9.3	-	*	.1	.1	9.4
Clinton	5.0	4.0	6.6	15.6	2.7	-	28.9	31.6	47.2
Columbia	-	.4	.3	.7	-	-	.2	.2	.9
Cortland	1.0	1.8	-	2.8	-	-	*	*	2.8
Delaware	3.2	3.4	.4	7.0	-	-	-	-	7.0
Dutchess	.1	.3	*	.4	-	-	-	-	.4
Essex	3.9	12.0	13.1	29.0	2.4	-	49.1	51.5	80.5
Franklin	29.9	9.0	3.0	41.9	5.5	-	55.6	61.1	103.0
Fulton	.2	6.6	2.8	9.6	.3	-	5.7	6.0	15.6
Greene	.3	1.4	.1	1.8	-	-	*	*	1.8
Hamilton	11.9	8.4	.6	20.9	*	-	25.5	25.5	46.4
Herkimer	13.6	5.2	3.0	21.8	.3	-	8.0	8.3	30.1
Jefferson	.2	1.2	.8	2.2	3.0	-	.2	3.2	5.4
Lewis	10.4	5.9	1.4	17.7	9.0	-	22.7	31.7	49.4
Madison	.5	1.7	.1	2.3	-	-	*	*	2.3
Montgomery	2.5	.6	1.0	4.1	*	-	.3	.3	4.4
Oneida	3.0	15.9	4.3	23.2	.3	-	2.4	2.7	25.9
Onondaga	.2	*	-	.2	.1	-	-	.1	.3
Orange	-	.1	-	.1	-	-	-	-	.1
Oswego	.2	1.8	.1	2.1	-	-	.3	.3	2.4
Otsego	3.0	6.0	4.5	13.5	.1	-	*	.1	13.6
Rensselaer	.1	1.3	.8	2.2	*	-	1.1	1.1	3.3
St. Lawrence	10.7	11.8	1.3	23.8	6.3	-	41.8	48.1	71.9
Saratoga	.4	13.4	10.7	24.5	.6	-	19.8	20.4	44.9
Schenectady	-	.2	*	.2	-	-	*	*	.2
Schoharie	9.4	3.5	4.8	17.7	*	-	.1	.1	17.8
Sullivan	-	3.2	-	3.2	.1	.1	.1	.3	3.5
Tioga	.1	*	-	.1	1.0	1.0	2.3	4.3	4.4
Ulster	-	2.6	.1	2.7	-	-	.2	.2	2.9
Warren	.5	23.3	18.6	42.4	1.2	-	35.3	36.5	78.9
Washington	.1	3.0	3.1	6.2	.5	-	4.7	5.2	11.4
Total	118.0	157.4	83.0	358.4	34.5	5.8	314.3	354.6	713.0

[a] Counties with no production are omitted.
*Less than 50 cords.

Table 14.-Pulpwood production from roundwood in Pennsylvania, by county and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Adams	-	-	0.2	0.2	-	2.3	1.2	3.5	3.7
Armstrong	-	0.1	1.2	1.3	-	-	.1	.1	1.4
Bedford	-	1.7	5.8	7.5	-	15.6	15.9	31.5	39.0
Berks	-	-	.1	.1	-	1.2	.6	1.8	1.9
Blair	-	.3	.9	1.2	-	6.3	2.4	8.7	9.9
Bradford	-	.6	2.0	2.6	6.9	9.4	23.5	39.8	42.4
Butler	-	-	-	-	-	5.6	1.7	7.3	7.3
Cambria	-	.5	1.3	1.8	-	1.3	1.4	2.7	4.5
Cameron	-	-	-	-	-	6.2	7.0	13.2	13.2
Carbon	-	-	.1	.1	-	*	*	*	.1
Centre	-	1.5	1.9	3.4	-	4.0	1.2	5.2	8.6
Clarion	-	-	.3	.3	-	4.3	5.0	9.3	9.6
Clearfield	-	4.5	7.3	11.8	-	18.5	4.0	22.5	34.3
Clinton	-	5.0	1.5	6.5	.7	11.7	5.6	18.0	24.5
Columbia	-	.3	.2	.5	.8	3.2	4.6	8.6	9.1
Crawford	-	.2	-	.2	-	.4	2.1	2.5	2.7
Cumberland	-	-	.4	.4	-	2.4	1.3	3.7	4.1
Dauphin	-	-	.2	.2	-	1.2	.6	1.8	2.0
Elk	-	.2	.3	.5	-	6.4	21.3	27.7	28.2
Erie	-	-	-	-	-	2.1	.5	2.6	2.6
Fayette	-	-	*	*	-	.4	1.1	1.5	1.5
Forest	-	-	.4	.4	-	7.6	17.3	24.9	25.3
Franklin	-	.3	1.9	2.2	-	6.0	3.3	9.3	11.5
Fulton	-	.2	5.0	5.2	-	5.4	6.3	11.7	16.9
Huntington	-	-	7.2	7.2	-	12.2	7.1	19.3	26.5
Indiana	-	-	2.7	2.7	-	-	.3	.3	3.0
Jefferson	-	.5	3.4	3.9	-	1.0	8.6	9.6	13.5
Juniata	-	-	1.0	1.0	-	1.4	.8	2.2	3.2
Lackawanna	-	.2	-	.2	.3	1.1	1.5	2.9	3.1
Lancaster	-	-	.1	.1	-	.4	.2	.6	.7
Lebanon	-	-	*	*	-	.3	.2	.5	.5
Lehigh	-	-	-	.0	-	.1	.1	.2	.2
Luzerne	-	-	.3	.3	.4	2.0	2.4	4.8	5.1
Lycoming	-	-	1.8	1.8	1.0	12.9	9.2	23.1	24.9
McKean	-	-	-	-	-	-	27.2	27.2	27.2
Mercer	-	-	-	-	-	.2	.2	.4	.4
Mifflin	-	-	.4	.4	-	.7	.4	1.1	1.5
Monroe	-	-	*	*	-	.6	.5	1.1	1.1
Montgomery	-	-	*	*	-	-	-	-	*
Montour	-	-	-	-	-	1.0	.6	1.6	1.6
Northampton	-	-	.6	.6	-	1.4	.8	2.2	2.8
Northumberland	-	-	-	-	-	6.5	1.1	7.6	7.6
Perry	-	-	.8	.8	-	.7	.4	1.1	1.9
Pike	-	-	-	-	-	1.2	.9	2.1	2.1
Potter	-	-	-	-	5.6	10.6	69.6	85.8	85.8
Schuylkill	-	-	1.8	1.8	-	10.4	1.9	12.3	14.1
Snyder	-	-	.6	.6	-	.1	*	.1	.7
Somerset	-	-	.1	.1	-	1.4	2.6	4.0	4.1
Sullivan	-	.9	.5	1.4	1.8	.9	9.6	12.3	13.7
Susquehanna	-	.2	-	.2	2.7	9.3	14.5	26.5	26.7
Tioga	-	-	.2	.2	4.4	7.7	17.4	29.5	29.7
Union	-	-	.1	.1	-	*		*	.1
Venango	-	-	-	-	-	6.0	2.4	8.4	8.4
Warren	-	-	*	*	-	6.9	17.8	24.7	24.7
Wayne	-	.1	.1	.2	.7	2.4	3.3	6.4	6.6
Westmoreland	-	-	-	-	-	-	*	*	*
Wyoming	-	.6	.5	1.1	2.9	8.6	16.9	28.4	29.5
York	-	-	.7	.7	-	3.6	1.9	5.5	6.2
Total	-	17.9	53.9	71.8	28.2	233.1	348.4	609.7	681.5

[a]Counties with no production are omitted. *Less than 50 cords.

Table 15.-Pulpwood production from roundwood in Delaware, Maryland, and New Jersey, by county and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
				DELAWARE					
Kent	-	-	0.8	0.8	-	-	-	-	0.8
Sussex	-	-	22.1	22.1	-	-	1.6	1.6	23.7
Total	-	-	22.9	22.9	-	-	1.6	1.6	24.5
				MARYLAND					
Allegany	-	1.0	5.1	6.1	-	17.4	18.5	35.9	42.0
Anne Arundel	-	-	3.0	3.0	-	.6	.3	.9	3.9
Baltimore	-	-	3.5	3.5	-	1.3	.6	1.9	5.4
Calvert	-	-	6.1	6.1	-	1.7	.9	2.6	8.7
Caroline	-	-	*	*	-	-	-	-	*
Carroll	-	-	.2	.2	-	.1	.1	.2	.4
Cecil	-	-	*	*	-	-	*	*	*
Charles	-	-	7.4	7.4	-	1.1	.5	1.6	9.0
Dorchester	-	-	2.8	2.8	-	-	*	*	2.8
Frederick	-	-	*	*	-	.3	.2	.5	.5
Garrett	-	1.0	4.7	5.7	-	7.1	13.4	20.5	26.2
Harford	-	-	*	*	-	-	-	-	*
Howard	-	-	*	*	-	-	.1	.1	.1
Kent	-	-	*	*	-	-	-	-	*
Prince Georges	-	-	1.2	1.2	-	*	*	*	1.2
St. Marys	-	-	18.7	18.7	-	-	-	-	18.7
Montgomery	-	-	*	*	-	-	*	*	*
Somerset	-	-	5.6	5.6	-	-	.1	.1	5.7
Talbot	-	-	*	*	-	-	-	-	*
Washington	-	-	.5	.5	-	.4	.2	.6	1.1
Wicomico	-	-	29.2	29.2	-	-	*	*	29.2
Worcester	-	-	3.6	3.6	-	-	*	*	3.6
Total	-	2.0	91.6	93.6	-	30.0	34.9	64.9	158.5
				NEW JERSEY					
Atlantic	-	-	0.5	0.5	-	-	-	-	0.5
Burlington	-	-	1.9	1.9	-	-	-	-	1.9
Camden	-	-	1.2	1.2	-	-	-	-	1.2
Ocean	-	-	1.5	1.5	-	-	-	-	1.5
Salem	-	-	.2	.2	-	-	-	-	.2
Total	-	-	5.3	5.3	-	-	-	-	5.3

[a]Counties with no production are omitted.
*Less than 50 cords.

Table 16.-Pulpwood production from roundwood in West Virginia, by county and species group, 1984

(In thousands of standard cords)

County[a]	Softwood				Hardwood				All species
	Spruce and fir	Hemlock and tamarack	Pine	Total	Aspen and yellow-poplar	Oak and hickory	Other hardwood	Total	
Barbour	-	-	-	-	-	0.3	0.3	0.6	0.6
Berkeley	-	1.0	5.9	6.9	-	.4	.4	.8	7.7
Cabell	-	-	.1	.1	-	-	*	*	.1
Calhoun	-	-	*	*	-	-	-	-	*
Fayette	-	-	*	*	-	-	6.8	6.8	6.8
Grant	-	.3	2.0	2.3	-	6.4	7.0	13.4	15.7
Greenbrier	-	-	2.8	2.8	-	-	59.1	59.1	61.9
Hampshire	-	2.5	12.9	15.4	-	10.7	11.3	22.0	37.4
Hardy	-	.5	2.8	3.3	-	7.2	8.4	15.6	18.9
Jackson	-	-	2.2	2.2	-	-	*	*	2.2
Jefferson	-	-	*	*	-	-	-	-	*
Lincoln	-	-	-	-	-	-	*	*	*
Mason	-	.2	1.7	1.9	*	*	*	*	1.9
Mineral	-	.2	2.4	2.6	-	2.1	1.7	3.8	6.4
Monroe	-	-	3.2	3.2	-	-	15.0	15.0	18.2
Morgan	-	.3	2.4	2.7	-	.7	.8	1.5	4.2
Nicholas	-	-	-	-	-	-	2.1	2.1	2.1
Pendleton	-	-	3.9	3.9	-	2.5	11.0	13.5	17.4
Pocahontas	-	.2	1.3	1.5	-	.5	4.4	4.9	6.4
Preston	-	.1	.6	.7	-	2.5	2.9	5.4	6.1
Putnam	-	-	.1	.1	-	-	-	-	.1
Randolph	-	-	.4	.4	-	2.2	2.7	4.9	5.3
Ritchie	-	-	.3	.3	-	6.6	3.6	10.2	10.5
Roane	-	-	.3	.3	-	-	*	*	.3
Summers	-	-	-	-	-	-	.8	.8	.8
Tucker	-	-	*	*	-	.2	.2	.4	.4
Wirt	-	-	.3	.3	-	5.1	2.8	7.9	8.2
Wood	-	.3	3.1	3.4	-	.7	.8	1.5	4.9
Total	-	5.6	48.7	54.3	*	48.1	142.1	190.2	244.5

[a]Counties with no production are omitted.
*Less than 50 cords.

*U.S. GOVERNMENT PRINTING OFFICE:1986-646-160:40002

Table 17.-Bark generated from roundwood pulpwood in the Northeast, by state and species group, 1984

(In thousand cubic feet)

State[a]	Softwood			Hardwood			All species		
	Used	Unused	Total	Used	Unused	Total	Used	Unused	Total
Kentucky	0.6	-	0.6	3.3	-	3.3	3.9	-	3.9
Maine	21.6	1.1	22.7	14.3	-	14.3	35.9	1.1	37.0
Maryland	1.4	-	1.4	2.0	-	2.0	3.4	-	3.4
New Hampshire	.6	-	.6	2.8	-	2.8	3.4	-	3.4
New Jersey	.1	-	.1	-	-	.0	.1	-	.1
New York	2.8	1.6	4.4	2.2	0.3	2.5	5.0	1.9	6.9
Ohio	-	-	-	4.9	-	4.9	4.9	-	4.9
Pennsylvania	1.4	-	1.4	6.6	.1	6.7	8.0	.1	8.1
Vermont	-	.1	.1	-	-	.0	.0	.1	.1
Total	28.5	2.8	31.3	36.1	0.4	36.5	64.6	3.2	67.8

[a]States with no pulpmills are omitted.

Table 18.-Whole-tree chip production in the Northeast by state, 1977-84

(In thousand cord equivalents)

State[a]	1977	1978	1979	1980	1981	1982	1983	1984
Connecticut	-	-	0.1	-	-	-	-	-
Kentucky	3.2	2.4	-	5.8	3.9	0.2	-	-
Maine	-	-	-	3.2	-	306.2	355.2	347.7
Maryland	5.7	20.0	23.1	21.4	19.8	13.1	15.7	16.7
Massachusetts	-	-	-	-	-	1.1	-	-
New Hampshire	75.1	49.5	30.9	32.3	37.4	50.4	38.3	69.0
New Jersey	-	-	-	1.4	1.3	7.2	11.2	4.0
New York	18.4	19.4	14.0	13.8	5.8	-	-	-
Ohio	132.4	195.9	233.4	262.3	249.3	255.8	286.6	275.4
Pennsylvania	6.6	71.7	63.6	62.1	98.4	96.5	87.9	93.6
Vermont	23.6	17.6	40.3	44.4	33.2	33.9	32.9	35.8
West Virginia	9.0	.4	3.4	64.1	36.1	26.7	20.0	18.1
Total	274.0	376.9	408.8	510.8	485.2	791.1	847.8	860.3

[a]States with no whole-tree chip production are omitted.

Widmann, Richard H. Pulpwood production in the Northeast--1984. NE-RB-93. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 17 p.

This annual report contains information compiled from a canvass of all pulpmills that use pulpwood produced in the 14 Northeastern states. In 1984 total production reached 9,006,600 cords--up 5 percent (401,600 cords) from 1983. The roundwood portion increased by 5 percent to reach 6,648,800 cords, whereas the residue portion increased by 4 percent to 2,357,800 cord equivalents. The receipts of pulpwood at the 41 mills in the region set a new high of 9,503,300 cords consumed.

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Keywords: Pulpwood, residue, whole-tree chips, timber output

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Experiment Station**

NE-RB-94

Forest Land Wildlife Habitat Resources of South-Central Ohio

Robert T. Brooks

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Abstract

As part of the third survey of Ohio's forest resources, measures for assessing wildlife habitat were taken in the State's 10 southern counties. This publication reports on the analysis of some of that data, describing the status of land use patterns, forest area, forest ownership, mast-producing trees, potential snag trees, and understory woody stems. Certain results of the survey are related to forest wildlife habitat quality conditions.

Foreword

The third inventory of Ohio was directed by Carl E. Mayer, research unit leader. Joseph E. Barnard was responsible for inventory design and sample selection. John R. Peters supervised the aerial-photo interpretation and data collection by field crews. He was assisted by Mark A. Cooper, III. Other field personnel were: Randy L. De Marco, Philip E. Emery, Robert C. Guth, Frederick J. Harris, Lois Schimmel, and Laurie L. Shortess.

David R. Dickson and Nancy M. Veronesi applied FINSYS (Forest INventory SYStem), a generalized data processing system, to the specific data needs of the Ohio inventory. Thomas W. Birch was instrumental in assuring that the area estimates were consistent with those from the two previous inventories. Teresa M. Bowers assisted in the inventory design by performing all calculations necessary for sampling-size determination and plot selection. She was responsbile for the coordination of keypunching and other data preparation tasks. Anne M. Malley helped prepare and balance the statistical tables in this report.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed this report.

Northeastern Forest Experiment Station
370 Reed Road, Broomall, PA 19008
October 1986

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Introduction

It has become widely accepted over the past few years that habitat is the foundation of our wildlife resources. Habitat provides the cover and forage necessary for the continued success of any wildlife species.

With this awareness of the importance of habitat resources has come a concomitant recognition that these resources are altered by land management practices and possibly destroyed by drastic land use change. Congress acknowledged this situation when it passed the 1974 Forest and Rangeland Renewable Resource Planning Act and later the 1978 Forest and Rangeland Renewable Resource Research Act. These acts require, among other things, a reoccurring assessment of our Nation's forest land resources, including wildlife habitat resources.

In response to this legislative mandate, the Forest Inventory, Analysis, and Economics (FIA&E) unit of the USDA Forest Service's Northeastern Forest Experiment Station broadened its forest survey procedures to include measures useful for wildlife habitat evaluation (Barnes and Barnard 1979). This report describes the initial application of those procedures in the 10-county area of south-central Ohio (Figure 1) in 1979.

Methods

The sampling procedure for 1979 habitat survey conducted by the FIA&E unit consisted of aerial photography and new ground sample locations. Remeasurement of ground samples from earlier surveys was also taken but only for timber resources. In south-central Ohio, this required classifying 9,798 points on aerial photographs into land-use and cubic-foot volume classes, and establishing 299 new ground measurement locations as a subsample of the photo points. The data collected were initially analyzed using the FINSYS computer system developed by the Northeastern Forest Experiment Station. Subsequent estimates herein were made using either the FINSYS option for Sampling with Partial Replacement design (for those Tables from previous FIA publications) or the Statistical Package for the Social Sciences (Nie et al. 1975).

The resurvey of Ohio's forest resources emphasized timber resources as reported by Dennis and Birch (1981) in "Forest Statistics for Ohio--1979." and Dennis (1983) in "An Analysis of Ohio's Forest Resources." Birch (1982) reported separately on the attitudes and objectives of the private forest-land owners in "The Forest-Land Owners of Ohio--1979." If interested in these or other publications on the forest resources of Ohio, contact the Forest Inventory, Analysis, and Economics Unit, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037).

Land Area Characteristics

Forest land is the predominate land use in south-central Ohio, covering 49 percent of the land base (Table 1). These lands constitute a major wildlife habitat resource of the region, both in area and in the numbers and diversity of wildlife supported. Agricultural lands are the second largest land use in the region, occupying 34 percent of the land. However, these lands support much less wildlife than forest lands because of the high level of disturbance

South-Central Ohio

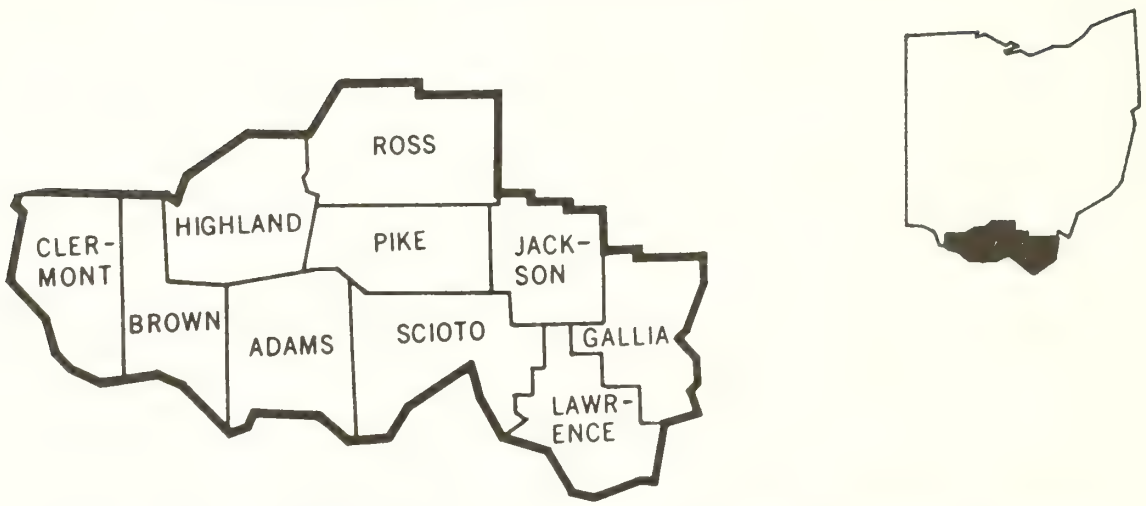

Figure 1.--Map of the 10 counties in Survey Unit 1 of Ohio and their location within the state.

associated with agricultural production. The remaining 17 percent of the region is nonforested, in urban, residential, industrial, and rights-of-way and other minor land uses. These lands, because of their high degree of disturbance, or small area, provide very little to the region's overall wildlife habitat resources.

There have been no major changes in land use in south-central Ohio over the past decade (Birch and Wharton 1982). Forest and agricultural acreage have remained stable over this period, with only a 2.6-percent increase in forest acreage and an 8.7-percent increase in total cropland acreage. An additional issue of great concern, but not addressed in this survey, is how land-management practices have changed the habitat values of these land uses. For example, the intensification of agriculture has generally reduced the value of agricultural acreage for farmland wildlife through increased field size, the removal of windrows and fence borders, and the increased use of chemicals (McCorkle and Halver 1982).

The examination of land acreage by land use provides one perspective of wildlife habitat resources. A second and possibly more informative perspective is the relational pattern formed by the placement of different land uses on the land surface. These data are used to describe the juxtaposition of contrasting land uses, that is, edge, and to estimate the degree of interspersion of these uses.

Many wildlife species benefit by a high degree of land use interspersion. These species require or prefer two or more land uses to satisfy life requirements. The greater the degree of interspersion of land uses required by the species, the greater the amount of preferred habitat that is available to them. Leopold (1933) discusses this principle in describing the land cover characteristics preferred by quail (Colinus virginianus). He describes ideal quail range as that which contains equal proportions of woodland, brushland, grassland, and cultivated

lands. The greater the degree of interspersion of these four land covers in a defined area, the greater the number of quail coveys the land could support.

Land use juxtaposition in south-central Ohio was surveyed from aerial photographs (Brooks and Scott 1983). In this application, photo edge plots were measured only for photo points that had been interpreted as forest land and subsequently selected as field measurement plots. These data show that the greatest amount of land use edge occurs between the two most common land uses, forest and agricultural/herbaceous-dominated lands (Table 2). The interspersion of these two land uses benefits a large number of wildlife, especially when compared to the juxtaposition of forest to more disturbed lands such as residential, industrial, or stripmines. The relatively high degree of forest to shrubland edge is a positive feature for many wildlife. More than 50 percent of the edge conditions tallied occurred between forest, agricultural, herbaceous, generally, pasture, and shrublands, a pattern previously cited by Leopold as favorable for quail.

More than 20 percent of all edge conditions are created by the juxtaposition of forest land with transportation rights-of-way (Table 2). This is a concern because highways are poor areas for wildlife habitat and they have significant wildlife mortality.

The low occurrence of edge associated with cultural (for example, residential, commercial, and industrial) and strip-mined land use is encouraging. Stripmines in this instance are active mines. Neither land use provides much to the wildlife habitat resource base of the region. Cultural, especially residential, land use affects not only on-site habitat values but also those of adjacent lands, mainly by disturbance of resident wildlife and by alteration of plant communities (Moran 1984, Horn 1985).

No data are available to compare the amount and distribution of edge types as reported here. Monitoring land use interspersion is valuable for trend analysis and the detection of adverse or positive patterns in land use change. Presumably, during the next Ohio forest survey, similar edge data can be used to detect changes in the amount and type of edge as it affects the quality of the region's wildlife habitat.

Many wildlife species are restricted to or prefer one land use, and a diverse land use pattern detracts from habitat quality. For these species, the area of a unit of land use affects the quality of the land for habitat. This is particularly true for many forest-dwelling birds that migrate long distances (Robbins 1979). These species prefer the conditions associated with the interior of forest lands. In south-central Ohio, nearly 75 percent of the forest land is in parcels of 50 acres or less (Table 3). This statistic should raise concern for the habitat quality of many seasonal birds of the region. Increased fragmentation of forest lands into progressively smaller parcels results in the eventual loss of many of these species from these lands. Robbins (1979) recommended 250 acres as the minimum contiguous forest area required to sustain viable breeding populations of long-migration bird species. Concomitantly, species preferring edge conditions would increase with forest fragmentation. These species are frequently nonmigratory residents or species with short migrations.

Of the 1.6 million acres of forest land in south-central Ohio, detailed habitat survey data were sampled from 1.5 million acres. These are the productive forest lands but exclude reserved lands (25,000 acres) such as parks, and national forest lands (68,000 acres).

The forest land of this region is dominated by the oak-hickory forest type group (78 percent, Table 4). The second major type group is the northern mixed

hardwood (11 percent). Conifer dominated stands cumulatively total only 7 percent of the region's forests. Working with wildlife in south-central Ohio means working with those species common in oak-hickory forests.

Sawtimber-size stands are the predominant size class (45 percent) in the region (Table 4). Smaller poletimber- and sapling/seedling-size stands are roughly equally common (22 and 28 percent, respectively). This size-class distribution is an important change from conditions reported in 1967 when small sapling/seedling-size stands were predominant (DeBald and McCay 1969). This maturation of the region's forests holds important implications for the wildlife community. Species strongly associated with young, early successional stands will necessarily decrease in abundance as their preferred habitat ages and declines in acreage.

Early successional forest land habitat resources are best described by timberland age classes (Table 5). Sapling/seedling-size timberland (Table 4) is based on a classification of the plurality stocking of sapling- and seedling-size growing-stock trees. This tree quality restriction excludes rough and rotten cull trees. Cull trees generally have large diameters; therefore, excluding them leaves a relatively high proportion of small-diameter trees. This is shown by the fact that only 14 percent of the region's forests were field classed as being less than 20 years of age, generally considered the time frame for small-diameter stands (Table 5), while 28 percent were classified as sapling seedling-size stands. When describing the old field and/or shrubland habitat of south-central Ohio, forest land acreage by age is probably more appropriate than stand size. These data show that 64 percent of the region's forest is classed as mixed ages and would probably be envisioned as sawtimber-size stands for habitat characterization.

The forest lands of south-central Ohio are mostly well-stocked stands, whether one considers all live trees or growing-stock alone. By either standard, more than 50 percent of the forests are classed as fully stocked or overstocked (Table 6). On these stands, tree growth is stagnant, mortality is high, and understory vegetation is suppressed (Spurr and Barnes 1980).

Forest management practices, if modified by wildlife considerations, would improve both the tree resource and habitat quality on overstocked forest lands. The specific silvicultural recommendations for any single forest stand depend on the forest type, stand conditions, site quality, and markets (Ohmann 1979). Even-age silvicultural systems are recommended for the oak-hickory forest type (Sander et al. 1983), the predominant type in southern Ohio. The choice between clearcutting or shelterwood methods of stand regeneration depends on the abundance of advanced regeneration (Sander et al. 1983). When regenerating an oak-hickory stand, the retention of existing or potential den trees is important, as is the composition of the future stand (Hassinger et al. 1979). It is important that the regenerating stand contain a variety of mast-producing species so the future mast resource will not suffer excessively by the failure of one species. It is also important to retain both white and black oak species to maintain a regular annual acorn crop.

Ownership Characteristics

Forest land of south-central Ohio is mostly privately owned by individuals (Table 7). Corporate forest owners are the second major landowner class.

Publicly owned forest lands are managed by the State or the USDA Forest Service. Successful habitat management for forest-dwelling species will require working with the multitude of private individuals controlling the forest-land resource.

These individuals mostly own small acreages, 9 acres or less (Table 8). There is an inverse relationship between the number of owners and acres owned that may influence habitat management programs depending on the objectives. To influence the most acres of forest-land habitat, locate and work with a few major ownerships (for example, 4 percent of the owners control 45 percent of the forest land). To influence a broad constituency, work with numerous small ownerships. Each population of owners requires a different message and medium. The few large-acreage ownerships could be contacted individually and a cooperative, integrated land management plan could be developed. The many owners of small acreages must be contacted by the mass media and be persuaded to practice proper and productive forest habitat management.

South-central Ohio private forest land owners are a diverse group, the majority identified themselves as retired, white-collar workers, or farmers (Table 9). The majority of acres are owned by retirees, farmers, or professional workers. Some 70 percent of forest-land owners live on or nearby their land (Table 10).

The motivation for owning forest land varies; the largest number of owners hold their land primarily because it is part of the farm or residence (Table 11). Owning forest land for either land investment or for timber production is a relatively minor justification for ownership. Nevertheless, more than 25 percent of the owners expect their primary benefit from ownership to be land value increase (Table 12). Another important expected primary benefit of forest-land ownership that bodes well for habitat management is esthetic enjoyment. Both of these diverse motivations should be considered when developing and marketing habitat management programs.

Timber harvest is a common and cost-effective method for managing forest-land wildlife habitat. However, in south-central Ohio, 64 percent of the private forest-land owners have not recently harvested timber from their land (Table 13). These individuals control approximately 40 percent of the privately held forest land. Reasons for not harvesting vary; some relate to the silvicultural availability of the timber resource. Other reasons are personal beliefs that could be changed through education, specifically that harvests destroy hunting opportunities and scenery.

The development of habitat management program options should consider the characteristics, motivation, and attitudes of the individuals who control the forest land. No single management plan is appropriate for all owners; rather a collection of opportunities should be made available for distribution through various media (Decker and Kelley n.d., Decker et al. n.d., Hassinger et al. 1979).

A final characteristic of private forest ownership that is important to privately owned habitat management by public agencies is the accessibility of the forest land to the public. It is debatable whether a public agency should expend public monies for the benefit of the individual who posts his or her forest land. A surprisingly low number of private forest-land owners post their lands in south-central Ohio, and these individuals control only 28 percent of the privately held forest-land resource (Table 14). Posting does not seem as serious a problem as in other states in the Northeast (Brown and Thompson 1976).

Habitat Component Characteristics

Mast production from forest trees is an important forage resource for numerous wildlife species. The most abundant mast are the nuts and soft fruit of tree and shrub species. Mast production is related to the size of the crown of the producing plant (Shaw 1971). Generally, the larger the tree diameter, the greater the potential mast production. Production is not constant for any plant, but varies annually depending

mostly on seasonal climatic factors. The number of mast-producing stems by species and diameter is a good index to potential mast production from forest trees. Exact production of mast could be estimated from these data using species specific mast-production functions, tempered by annual climatic and environmental conditions.

In south-central Ohio, white oak is the most common mast-producing species (Table 15). Other common mast-producing species are hickories as a group, and chestnut oak. More than 10 million stems, 5 inches and larger in diameter, of each of these species are estimated to be in the region. The number of large-diameter stems, and hence high-potential mast producers, is naturally less than smaller diameter stems. Other numerous mast-producing species include sassafras, black oak, and northern red oak.

The large number of mast-producing stems in this area is expected given that the dominant forest-type group is oak-hickory. These mast trees constitute an important forage resource base for the support of forest wildlife such as squirrels (Sciurus sp.), turkey (Meleagris gallopavo), and white-tailed deer (Odocoileus virginianus).

Commonly surveyed soft fruit producing tree species, in addition to sassafras, are flowering dogwood, common persimmon, and cherry (Table 15). The mast of these species are important forage for numerous wildlife of both mammal and avian species (Martin et al. 1961).

Small-diameter (less than 5 inches) woody stems--saplings, seedlings, and shrubs--are an important habitat resource. They provide forage in the form of mast and browse, and horizontal cover. The value of this resource for either forage or cover varies by species. The contribution of an individual species to the total resource can be quantified by the use of importance values (Greig-Smith 1957, Mueller-Dombois and Ellenberg 1974). For this report, we calculated the relative frequency and density of all shrubs, saplings, and seedlings encountered in south-central Ohio (Table 16). In general, species that occur in large numbers (relative density) are also widely distributed (relative frequency).

Sassafras, flowering dogwood, and elm are the most important species of the small-diameter, woody-stemmed resource (Table 16). Flowering dogwood, along with other dogwood species, is frequently mentioned as an important shrub species for Ohio wildlife (Gilfillian and Cannon 1967, Nixon et al. 1970, Stoll et al. 1980). Neither sassafras nor elm is considered highly important to wildlife, though each is considered a forage source for some wildlife species. Other shrub, sapling, and seedling species that are both distributionally important and mentioned as important to Ohio's wildlife are the maples, hawthorn, and black cherry. Many oak species are commonly seen in the understory but are of little value to wildlife until they are sufficiently mature to produce acorns.

Common mast-producing shrubs are mostly soft fruit-bearing species. The most common are common spicebush, poison ivy, and blueberry, each estimated at over 100 million stems in south-central Ohio (Table 17). Other common mast-producing shrubs include Virginia creeper, virburnums as a group, and hawthorn. Many of these species are considered important to ruffed grouse (Bonasa umbellus) and other wildlife species (Stoll et al. 1980, Gilfillian and Cannon 1967). Stems found in the understory of closed canopy forests produce less mast than open-grown stems because of the shading effect of the overtopping forest canopy (Sharp 1974). In this region, where fully and overstocked stands are the norm, the shading effect is especially severe.

The common mast-producing trees are as common as saplings but their mast potential is generally less because of their small size. Some sapling-size tree species such as flowering dogwood,

black cherry, hawthorn, and sassafras might be expected to produce mast when not severely overtopped.

In addition to producing mast, saplings, seedlings, and shrubs provide a second forage resource. Young woody growth, termed browse, and the attached foliage is commonly eaten by such species as white-tailed deer, hare (Lepus americanus), and rabbits (Sylvilagus floridanus). The use of browse is not as common or critical in this region as in more northerly locations. Only an estimated 19 million stems were classed as heavily browsed in south-central Ohio, out of a resource of 5.5 billion (Table 17). It is estimated that only 6.8 percent of all sapling, seedling, and shrub stems show any browse use. Maples are the only species considered important to Ohio's deer (Nixon et al. 1970).

Vines are an important habitat component for Ohio's wildlife. Many vine species produce fruit that is a forage resource (Gilfillian and Cannon 1967). The most common vine species is poison ivy; it is estimated to occur on more than 123,000 acres of forest land. Other vine species are common greenbrier (23,000 acres), Virginia creeper (40,000 acres), grape (23,000 acres), and vine honeysuckle (7,000 acres). Each of these species produces fruit mast considered important for grouse (Stoll et al. 1980) and other wildlife species (Martin et al. 1961).

A final habitat component is the snag and cavity tree resource. We defined snags as standing dead trees; cavity trees are surveyed trees, either dead or living, with an observed cavity. For this survey, only snags and rotten live cull trees were searched for cavities.

These trees provide a valuable resource for wildlife, as a substrate for both constructing dens and cavities and for foraging for invertebrates. Standing dead trees and trees with internal disease (that is, rotten cull) have a higher probability of being used by primary cavity nesters, the woodpeckers, as the wood is more easily excavated. These cavities, and natural cavities caused by disease or injury, are used as resting or nesting sites by various bird (Scott et al. 1977) and small mammal species. These same trees are often infested with wood-dwelling insects and, therefore, provide foraging sites for insectivorous birds.

There are an estimated 10 million snags in south-central Ohio (Table 18). Of these, some 32 percent have readily observable cavities. There are slightly over 29 million rough and rotten cull trees in this area, and 12.5 percent contained observable cavities. While cavities are more readily observed in a dead tree without foliage, this factor should not solely account for cavities being over twice as common in dead trees as in live trees.

Large sawtimber-size snags commonly have cavities, approximately 68 percent (Table 18). Broken top snags had more cavities for all three size classes than snags with intact tops.

Sawtimber-size rotten cull trees are more likely to have cavities than the other two smaller size classes (Table 18). This is not unexpected as larger trees have lived longer, increasing the possibility of disease or pests and subsequently being excavated as a cavity site (DeGraaf and Shigo 1985). Also, the larger the tree, the greater the number of cavity-excavating species that may choose it as a cavity site. Number of poletimber-size snags indicates that they are the largest resource for cavity and potential cavity trees (Table 18). However, larger diameter stems are the more important snag resource because of their degree of use as cavity trees.

There are more hardwood than softwood snags; this is expected in an oak-hickory dominated region (Table 19). The most common snag species is black locust and because of its large numbers is the most common snag species found with a cavity. However, white and red pine, beech, yellow-poplar, aspen, and northern red oak snags were always

found with cavities indicating a preference by cavity-excavating birds for these species over other more numerous snag species.

Live cull trees are estimated to have cavities about 13 percent of the time (Table 18). Oaks are again the most common species in this group of trees, but they are not the species most often found with cavities (Table 19). Live cull sycamore has the highest percentage of stems with cavities (48 percent). Other species whose cull stems are frequently observed with cavities are red maple, hickory, beech, yellow-poplar, and black locust.

Comparable data for other areas are extremely limited but have been summarized by McComb and Bonney (1984). Comparisons are difficult because there is no single, commonly accepted definition of snag. The estimate of snags per acre (that is, estimated total stems divided by estimated timberland acreage) from this forest survey (6.6) is the same as that reported for a limited study on Kentucky forest land (Moriarity and McComb 1983). This estimate is less than that reported (13.3) for a West Virginia study (Carey 1983). Both comparison studies included trees down to a minimum 10-cm diameter, whereas this forest survey considered only trees 5-inches (12.7 cm) and larger.

Sampling Error

Data in this report are based on a sample of forest conditions and are therefore estimates. Accuracy of any estimate can only be ascertained by expert review, as has been done by resource professionals familiar with the habitat resources of south-central Ohio.

Precision of any estimate can be mathematically calculated and is presented here as the sampling error. Only a few error values have been calculated for this report due to the difficult and costly process involved when not using FINSYS.

Sampling error is presented as a percentage of the associated estimate. As an example, there are estimated to be 4.9 billion shrubs, saplings, and seedlings in south-central Ohio (Table 17). The calculated sampling error is 266.4 million or 5.3 percent. This means that if there are no errors in procedure, and the survey were repeated, the odds are 2 to 1 (66 percent probability) that the resulting estimate of this value would be between 4,729.6 to 5,262.4 billion stems, or 4,996.0 $\pm$ 266.4 million stems. Similarly, there is a 95 percent probability that the estimate from a repeated survey would be between 4,463.2 to 5,528.8 billion stems, or 4,996.0 $\pm$ 532.8 million stems.

Sampling error on resource estimates cited from other publications (Dennis and Birch 1981; Birch 1982) can be found in those references. Sampling error on the number of mast-producing trees (Table 15) is estimated roughly in Table 37 of Dennis and Birch (1981). In their report, national forest lands were included in the sample but cull trees were excluded. Nevertheless, sampling error estimates are appropriate for most uses of these mast-potential data. Sampling error for snags is 13.7 percent of the total 10 million trees (Table 18). Error on the estimated 7 million trees with observed cavities is 12.2 percent.

Error estimates for any value of greater detail will necessarily have a larger sampling error. This is a function, for the most part, of the decreased number of observations in the sample.

Summary

Without comparable statistics from other areas or previous regional surveys, it is difficult to evaluate the results of this habitat data. The most common forest habitats of south-central Ohio are predominantly sawtimber-size oak-hickory stands. These lands are commonly interspersed with agricultural lands and transversed by highways. They

are found in relatively small stands, less than 50 acres.

Forest stands of early successional characteristics appear to be a relatively rare resource that should be monitored in succeeding surveys. Regardless of forest classification, south-central Ohio's forests are predominantly overstocked, and as such, appropriate for forest management activities. This creates a valuable opportunity for cost-effective forest habitat improvement.

South-central Ohio forest habitat is essentially privately owned. There are a large number of owners, but each owns relatively few acres creating difficult conditions for implementing a cohesive regional habitat management program.

Characteristics of owners and their motivations and justifications for owning forest land are diverse. A program to encourage private, individual habitat-improvement activities will have to be flexible enough to appeal to the variety of owners. Fortunately, commercial forest management (that is, harvesting) is acceptable to most owners.

Posting does not appear to be a serious problem at this time. Nevertheless, it is an important factor in working with private landowners and should be monitored in future surveys.

Mast production by forest trees in south-central Ohio is an important forage resource for the region's wildlife. A large number of trees produce either hard (nuts) or soft (fruit) mast. It will be informative to compare these data with that of the next survey to evaluate the change in mast-production potential.

Saplings, seedlings, and shrubs are also an important habitat resource both for forage and cover. Eighty-seven different species of these size classes, plus vines, were recorded in south-central Ohio (Table 16). Most are relatively minor in importance, either narrowly distributed or few in number, or both. Fortunately, many of the more important (common) species are also valuable to wildlife for their forage potential, especially at maturity as forest trees.

Standing dead trees (snags) and live cull trees with cavities are important habitat resources for their actual or potential value for cavities. On a per-acre basis, there are estimated to be 4.5 trees, both live and dead, poletimber and larger, with observable cavities.

This report presents an initial picture of the forest habitat resources of south-central Ohio. The data are of some value in describing the resource base. However, without comparable data for adjacent areas or for other time periods, it is difficult to analyze the data. In reporting these data, we hope that they will stimulate discussion of the subject. User comments will enable us to develop even more useful products from the next Ohio survey. Resurvey data will enable us to identify change in the quality of wildlife habitat resources and the quantity of its component parts.

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Appendix

Definition of Terms

Agricultural/herbaceous land. Land with herbaceous plant cover, both grasses and/or forks, including cropland, pasture land, and natural grass lands.

Aquatic edge. An edge condition created when a terrestrial land use abuts a lake, pond, river, or stream.

Browse. Forage resource; defined here as current twig growth of woody-stemmed, perennial plants, occurring between 1 and 8 feet in height.

Browse utilization class. Four levels of browse use; none, light (1-10 percent available), moderate (11-40 percent), and heavy (greater than 40 percent).

Cavity. A hollowed out space in a tree, either natural or faunal caused; frequently used as a nesting site or temporary refuge by many species of wildlife.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cull tree. A live tree predominantly rotten or of rough form (see Growing-stock trees).

Cultural land. Land with human development as the major land cover; includes industrial, commercial, and residential land uses.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from non-farm owners.

Federal lands. Lands (other than national norests) administered by Federal agencies.

Forest industry lands. Lands owned by companies or individuals operating primary wood-using plants.

Forest land. Land at least 10 percent stocked with trees of any size or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land based on the species forming a plurality of live-tree stocking. The many forest types in Ohio were combined into the following major forest-type groups:

a. White/red pine--forests in which white pine or red pine, singly or in combination, make up a plurality of the stocking; in Ohio common associates include yellow-poplar, red maple, oak, black walnut and black cherry.

b. Hard pine--forests in which Virginia, shortleaf, or pitch pines or eastern redcedar, singly or in combination make up a plurality of the stocking; in Ohio common associates include red maple, oak, white or red pine, white ash, black walnut, and sycamore.

c. Oak/pine--forests in which hardwoods (usually hickory or oak) make up a plurality of the stocking but where shortleaf or Virginia pine or eastern redcedar make up 25 to 50 percent of the stocking.

d. Oak/hickory--forests in which upland oaks, hickory, yellow-poplar, black locust, black walnut, sweetgum, sassafras, persimmon, or red maple (when associated with central hardwoods), singly or in combination, make up a plurality of the stocking and in which shortleaf or Virginia pines, or eastern redcedar make up less than 25 percent of the stocking; in Ohio common associates include white ash, sugar maple, and black cherry.

e. Elm/ash/red maple--forests in which elm, river birch, sycamore, willow, cottonwood, or red maple (when growing on wet sites), singly or in combination, make up a

plurality of the stocking; in Ohio common associates include white ash, sugar maple, oak, hickory, yellow-poplar, and black cherry.

f. Northern hardwoods--forests in which sugar maple, beech, yellow birch, black cherry, or red maple (when associated with northern hardwoods), singly or in combination, make up a plurality of the stocking; in Ohio common associates include white ash, hickory, yellow-poplar, white oak, and red oaks.

g. Aspen/birch--forests in which aspen is a plurality of the stocking; in Ohio common associates include red maple, black cherry, red oaks, and beech.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Harvested cropland. All land from which crops were harvested or hay was cut and all land in orchards, citrus groves, vineyards, and nursery and greenhouse products.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory, Analysis, & Economics: same as (a) except that the minimum width of streams, etc., is 120 feet, and the minimum size of lakes, etc., is 1 acre.

Land use edge. A condition created by the juxtaposition of two differing land uses.

Mast. Seed produced by woody stemmed, perennial plants, generally refers to soft (fruit) and hard (nuts) mast.

Miscellaneous private lands. Privately owned lands other than forest-industry and farmer-owned lands.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Noncommercial forest land. Productive-reserved, urban, and unproductive forest land.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nonstocked areas. Commercial forest land that is stocked with less than 10 percent of minimum full stocking with growing-stock trees.

Other cropland. Includes cropland used for cover crops; legumes, soil-improvement grasses, but not harvested and not pastured; cropland on which all crops failed; cropland in summer fallow and idle cropland.

Pasture land. Includes any pasture land other than cropland and woodland pasture. Can include lands which had applied lime fertilizer, seed, improved by irrigation, drainage, or control of weeds and brush.

Pastured cropland. Includes rotation pasture and grazing land that would have been used for crops without additional improvement.

Poletimber stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees, with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

Productive-reserved forest land. Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees. (a) The same as rotten trees, except that rough trees do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) all live trees of noncommercial species.

Saplings. Live trees 1.0 through 4.9 inches d.b.h.

Sapling-seedling stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees; half or more of such stocking in saplings or seedlings or both.

Sawtimber stands. Stands stocked with at least 10 percent of minimum full stocking with growing-stock trees; half or more of such stocking in poletimber or sawtimber trees or both, and the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Seedlings. Live trees less than 1.0 inch d.b.h. that are expected to survive.

Shrub. Woody stemmed perennial plant, generally with no well-defined main stem and less than 12 feet in height at maturity.

Shrub land. Land with shrub and/or tree cover and an obvious herbaceous understory; average canopy height of less than 25 feet and crown closure of less than 70 percent.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand. A group of forest trees growing on forest land.

Standing dead tree (snag) - woody stem greater than 5.0 inches in diameter and 10 feet in height.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of growing-stock trees in the area.

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches d.b.h. and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used:

All live trees--these are used to classify forest land and forest types.

Growing-stock trees--these are used to classify stand-size classes.

Stripmine. Area devoid of vegetation due to current or recent general excavation.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (previously termed commercial forest land).

Transportation right-of-way. Land associated with highways and railroads.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions because of adverse site conditions.

Urban forest land. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

Utility right-of-way. Land associated with pipeline and electric transmission lines; identified only if vegetative cover differs from adjacent land use.

Windbreak/hedgerow. Linear areas, less than 120 feet in width; with predominantly tree and/or shrub vegetation.

Commercial Tree Species of Ohio (Dennis and Birch 1981)

Scientific Name[a]	Common Name	Occurrence[b]
Softwoods		
Juniperus virginiana	eastern redcedar	c
Picea abies	Norway spruce	vr
Pinus echinata	shortleaf pine	r
P. resinosa	red pine	vr
P. regida	pitch pine	r
P. strobus	eastern white pine	r
P. sylvestris	Scotch pine	vr
P. virginiana	Virginia pine	c
Thuja occidentalis	northern white-cedar	vr
Tsuga canadensis	eastern hemlock	r
Hardwoods		
Acer nigrum	black maple	r
A. rubrum	red maple (soft)	vc
A. saccharinum	silver maple	c
A. saccharum	sugar maple (hard)	vc
Aesculus glabra	Ohio buckeye	vr
Betula alleghaniensis	yellow birch	r
B. lenta	sweet birch (black)	r
B. nigra	river birch	vr
Carya spp.	hickory	vc
Castanea dentata	American chestnut	vr
Celtis occidentalis	hackberry	r
Cornus florida	flowering dogwood	c
Diospyros virginiana	common persimmon	r
Fagus grandifolia	American beech	c
Fraxinus americana	white ash	vc
F. nigra	black ash	r
F. pennsylvanica	green ash	r
F. quadrangulata	blue ash	vr
Gleditsia triachanthos	honeylocust	r
Gymnocladus dioicus	Kentucky coffeetree	vr
Juglans cinerea	butternut	r
J. nigra	black walnut	c
Liquidambar styraciflua	sweetgum (red gum)	r
Liriodendron tulipifera	yellow-poplar (tulip tree)	vc
Magnolia spp.	magnolia spp.	vr
Magnolia acuminata	cucumber tree	vr
Nyssa sylvatica	blackgum (black tupelo)	c
Platanus occidentalis	American sycamore	c
Populus balsamifera	balsam poplar	vr
P. deltoides	eastern cottonwood	r
P. grandidentata	bigtooth aspen	c
P. tremuloides	quaking aspen	r
Prunus serotina	black cherry	vc
Quercus alba	white oak	vc
Q. bicolor	swamp white oak	c
Q. coccinea	scarlet oak	c
Q. imbricaria	shingle oak	r

Q. macrocarpa	bur oak	r
Q. muehlenbergii	chinkapin oak	r
Q. palustris	pin oak	c
Q. prinus	chestnut oak	c
Q. rubra	northern red oak	c
Q. stellata var. stellata	post oak	r
Q. velutina	black oak	c
Robinia pseudoacacia	black locust	c
Salix spp.	willow spp.	r
Sassafras albidum	sassafras	c
Tilia spp.	basswood	c
Ulmus spp.	elm	vc

[a]Names according to: Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture; 1979. 375 p.

[b]Occurrence is based on the frequency of tally of commercial species 5.0 inches d.b.h. or larger on forest survey field plots: vr - very rare (<0.05%), r - rare (0.05 to 0.49%), c - common (0.5 to 4.9%), and vc - very common (≥5.0%).

Metric equivalents of units used in this report

1 acre = 4,046.86 square meters or 0.404686 hectares
1,000 acres = 404.686 hectares
1,000,000 acres = 404,686 hectares
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
Breast height = 1.4 meters above ground level
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters or 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare

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Table 1.--Land area by land class, south-central Ohio, 1979

Land class	Area	
	Thousand Acres	Percent
Timberland	1,601.3	48.4
Noncommercial forest land:		
Productive reserved	24.8	0.8
Urban	0.2	(t)
Unproductive	0.5	(t)
Total noncommercial	25.5	0.8
Total forest land	1,626.8	49.2
Nonforest land:		
Agricultural lands[a]		
Cropland		
Harvested	662.1	20.0
Pastured	241.5	7.3
Other	103.1	3.1
Total cropland	1,006.7	30.4
Pastureland	128.7	3.9
Total agriculture	1,135.4	34.3
Other nonforest	545.3	16.5
Total nonforest	1,680.7	50.8
Total land area[b]	3,307.5	100

[a] Source: U.S. Department of Commerce, Bureau of the Census, 1980. 1978 Census of Agriculture, preliminary report. AC78-P-39-000. p.1.

[b] U.S. Department of Commerce, Census, County and City Data Book, 1972.

t-Trace, less than 0.5 percent.

Table 2.--Land use edge for forest-associated lands as a proportion of total edge by edge class, south-central Ohio, 1979

Edge class	Proportion of total edge condition
Forest	
Forest	3.7
Shrub	11.9
Agricultural/herbaceous	35.0
Cultural	2.4
Total	53.0
Shrub	
Agricultural/herbaceous	5.0
Cultural	0.3
Total	5.3
Agricultural/herbaceous-Cultural	3.9
Rights-of-Way	
Transportation RoW	20.3
Utility RoW	4.1
Total	24.4
Windbreak/hedgerow	8.0
Strip mine	1.5
Acquatic	3.9
Total	100.0

Table 3.--Area of timberland, excluding national forest lands, by size of stand, south-central Ohio, 1979

Size of stand (acres)	Thousand acres	Percent
1 - 50	1,111.7	72.5
51 - 1000	263.7	17.2
101 - 500	51.4	3.4
500+	106.3	6.9
All stands	1,533.1	100.0

Table 4.--Area of timberland, excluding national forest lands, by forest-type group and stand-size class, south-central Ohio, 1979

Forest-type group	Stand-size class				All classes	
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
	Thousand acres					Percent
White/red pine	-	-	-	14.7	14.7	1.0
Hard pine	19.3	13.2	41.5	-	74.0	4.8
Oak/pine	7.2	-	-	-	7.2	0.5
Oak/hickory	559.4	291.6	293.5	56.0	1,200.5	78.3
Elm/ash/red maple	17.0	14.2	44.9	-	76.1	4.9
Northern hardwoods	93.9	14.7	52.0	-	160.6	10.5
Total, all groups	696.8	333.7	431.9	70.7	1,533.1	100.0
Percent of total	45.4	21.8	28.2	4.6	100.0	

Table 5.--Area of timberland, excluding national forest lands, by stand age class, south-central Ohio, 1979

Age class (years)	Thousand acres	Percent
1 - 9	110.9	7.2
10 - 19	105.7	6.9
20 - 29	60.0	3.9
30 - 39	84.8	5.5
40 - 49	75.3	4.9
50 - 59	51.7	3.4
60 - 69	55.6	3.6
70 - 79	7.2	0.5
Mixed ages	981.9	64.1
Total, all ages	1,533.1	100.0

Table 6.--Area of timberland, excluding national forest lands, by stocking percent class, growing stock, and all live trees, south-central Ohio, 1979

Stocking class[a]	Growing-stock			All live trees		
	Thousand acres	Percent	Cumulative percent	Thousand acres	Percent	Cumulative percent
Overstocked (130%+)	141.5	9.2	9.2	316.7	20.7	20.7
Fully stocked (100%-129%)	636.4	41.5	50.7	854.5	55.7	76.4
Medium stocked (60%-99%)	554.6	36.2	86.9	256.6	16.7	93.1
Poorly stocked (0%-59%)	200.6	13.1	100.0	105.3	6.9	100.0
Total, all classes	1,533.1	100.0		1,533.1	100.0	

[a]100 percent stocking equals approximately 75 square feet of basal area per acre.

Table 7.--Area of timberland by ownership class, south-central Ohio, 1979 (Dennis and Birch 1981)

Ownership class	Thousand acres	Percent
National Forest	68.2	4.3
Other federal	-	-
State	110.4	6.9
County and Municipal	0.1	(t)
Total public	178.7	11.2
Corporate	162.3	10.1
Other private	1,260.3	78.7
Total private	1,422.6	88.8
Total, all ownerships	1,601.3	100.0

t-Trace, less than 0.5 percent.

Table 8.--Estimated number of private ownership units and acres of timberland owned by size class, south-central Ohio, 1979 (Birch 1982)

Size class (acres)	Owners			Acres		
	Thousands	Percent	Cumulative percent	Thousands	Percent	Cumulative percent
1 - 9	55.3	69	69	129.0	9	9
10 - 19	8.4	10	79	111.4	8	17
20 - 49	9.6	12	91	287.2	20	37
50 - 99	3.8	5	96	252.0	18	55
100 - 199	2.2	3	99	275.5	19	74
200 - 499	0.5	1	100	140.6	10	84
500+	0.1	(t)		226.9	16	100
Total, all classes	79.9	100		1,422.6	100	

t-Trace, less than 0.5 percent.

Table 9.--Estimated number of individual owners and acres of timberland owned by occupation, south-central Ohio, 1979 (Birch 1982)

Occupation	Owners		Acres	
	Thousands	Percent	Thousands	Percent
Professional	5.0	7	117.0	10
Executive	0.9	1	66.0	6
Retired	27.1	36	280.7	25
White collar	6.8	9	99.4	9
Skilled laborer	4.5	6	81.9	7
Unskilled laborer	1.8	2	70.2	6
Housewife	1.4	2	46.8	4
Farmer	6.5	8	233.9	20
Other	0.1	(t)	5.8	1
No answer	21.9	29	136.9	12
Total	76.0	100	1,138.6	100

t-Trace, less than 0.5 percent.

Table 10.--Estimated number of private ownership units and acres of timberland owned by distance from residence to nearest tract, south-central Ohio, 1979 (Birch 1982)

Distance from residence (miles)	Owners		Acres	
	Thousands	Percent	Thousands	Percent
0 - 1	56.8	71	947.5	67
2 - 5	11.1	14	74.4	5
6 - 15	1.3	1	93.5	6
16 - 25	0.8	1	46.8	3
26 - 50	0.6	1	23.4	2
Over 50	4.8	6	128.7	9
No answer	4.5	6	108.3	8
Total	79.9	100	1,422.6	100

Table 11.--Estimated number of private ownership units and acres of timberland owned by primary reason for owning, south central Ohio, 1979 (Birch 1982)

Primary reason for owning	Owners		Acres	
	Thousands	Percent	Thousands	Percent
Land investment	4.6	6	136.2	10
Recreational use	2.2	3	81.8	6
Timber production	2.3	3	163.0	11
Farm & domestic use	13.3	17	157.9	11
Esthetic enjoyment	2.8	3	99.4	7
Part of farm	30.3	38	391.8	27
Part of residence	14.2	18	198.9	14
Other	1.9	2	79.5	6
No answer	8.3	10	114.1	8
Total	79.9	100	1,422.6	100

Table 12.--Estimated number of private ownership units and acres of timberland owned by primary benefit expected in the next 5 years, south-central Ohio, 1979 (Birch 1982)

Primary benefit	Owners		Acres	
	Thousands	Percent	Thousands	Percent
Recreational use	4.9	6	87.7	6
Sale of timber	2.9	4	208.1	15
Land value increase	19.6	24	365.2	26
Esthetic enjoyment	23.3	29	286.6	20
Farm & domestic use	16.7	21	263.2	18
Other	0.5	1	56.9	4
No answer	12.0	15	154.9	11
Total	79.9	100	1,422.6	100

Table 13.--Estimated number of private ownership units who have not harvested timber and acres of timberland owned by reason for not harvesting, south-central Ohio, 1979 (Birch 1982)

Reason	Owners		Acres	
	Thousands	Percent	Thousands	Percent
Timber immature	7.0	14	175.4	32
Price too low	0.6	1	23.4	4
Destroy hunting	2.5	5	40.9	8
Selling the land	1.3	3	23.4	4
Ruin scenery	10.0	20	58.5	11
Distrust loggers	0.4	1	23.4	4
Opposed to harvest	7.3	14	11.7	2
Poor quality	0.7	1	35.1	6
Low volume	8.2	16	29.2	5
Insufficient area	3.5	7	23.4	4
Other	1.7	3	35.1	6
No answer	7.8	15	77.3	14
Total	51.0	100	556.8	100
	(63.8 percent all owners)		(39.1 percent all acres)	

Table 14.--Estimated number of private ownership units and acres of timberland owned by posting status, south-central Ohio, 1979 (Birch 1982)

Posting Status	Owners		Acres	
	Thousands	Percent	Thousands	Percent
Posted	13.6	17.0	395.3	27.8
Not posted	58.2	72.9	942.4	66.2
No answer	8.1	10.1	84.9	6.0
Total	79.9	100	1,422.6	100

Table 15.--Number of all live nut and fruit producing trees on timberland, excluding national forest lands, by species and diameter class, south-central Ohio, 1979

(In thousands of trees)

Species	Diameter class (inches at breast height)										All trees
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+	
Hickory	6,581.1	4,888.5	2,840.0	1,800.8	882.2	778.8	300.4	119.8	101.9	5.2	18,298.7
Flowering dogwood	1,582.3	-	-	-	-	-	-	-	-	-	1,582.3
Comm. persimmon	607.3	231.3	111.6	127.7	29.4	-	-	13.5	-	-	1,120.8
American beech	685.9	481.8	389.6	271.1	161.1	-	-	29.4	147.5	13.6	2,180.0
Butternut	-	-	43.8	-	-	-	-	-	-	-	43.8
Black walnut	112.9	697.8	737.0	276.5	163.9	93.7	50.8	16.8	7.6	-	2,157.0
Osage-orange	-	-	-	-	-	-	15.6	-	-	-	15.6
Black tupelo	863.6	422.8	404.8	97.3	-	61.5	54.3	-	43.0	5.9	1,953.2
E. hophornbeam	464.6	-	-	-	-	-	-	-	-	-	464.6
Prunus sp.	192.1	-	-	-	-	-	-	-	-	-	192.1
Black cherry	1,342.0	861.1	166.8	277.7	170.1	109.8	74.9	34.3	-	7.2	3,043.9
White oak	5,851.3	4,413.2	3,261.2	1,701.4	1,981.8	1,519.2	731.8	385.3	319.3	46.7	20,211.2
Swamp white oak	140.4	-	-	-	-	-	-	-	9.1	-	149.5
Scarlet oak	665.4	278.6	248.0	299.4	303.1	219.3	126.2	57.1	68.2	5.9	2,271.2
Shingle oak	171.6	-	-	-	-	-	36.6	-	-	-	208.2
Bur oak	131.8	-	103.1	119.2	32.0	20.3	15.3	-	39.3	6.4	467.4
Chinkapin oak	145.1	154.1	155.0	83.0	55.7	67.3	51.5	-	-	-	711.7
Pin oak	1,000.5	233.6	98.8	76.8	123.3	135.4	38.2	43.8	97.8	9.4	1,857.6
Chestnut oak	2,826.8	3,696.4	2,647.5	2,272.4	1,430.7	809.5	334.8	259.1	243.1	41.5	14,561.8
Northern red oak	1,493.3	862.5	944.5	395.7	408.7	265.5	246.3	105.6	237.0	96.4	5,055.5
Post oak	189.5	295.6	97.5	36.2	-	81.8	47.9	13.0	-	-	761.5
Black oak	1,325.6	1,189.0	1,239.3	1,114.2	525.8	490.8	233.1	191.8	182.8	15.1	6,507.5
Sassafras	6,015.7	2,247.7	841.8	383.7	193.1	117.6	28.9	27.6	19.2	-	9,875.3
Total	32,388.8	20,954.0	14,330.3	9,333.1	6,460.9	4,770.5	2,386.6	1,297.1	1,515.8	253.3	93,690.4

Table 16.--Relative frequency[a] and relative density[b] of all shrub and tree seedling and sapling species tallied on Forest Inventory and Analysis plots in south-central Ohio, 1979

Scientific name[c]	Common species name	Relative		
		Frequency	Density	Sum
Juniperus sp.	Juniper	1.0	0.1	1.1
Juniperus virginiana	Eastern redcedar	19.0	2.5	21.5
Pinus echinata	Shortleaf pine	2.0	0.1	2.1
Pinus rigida	Pitch pine	0.5	(t)	0.5
Pinus strobus	Eastern white pine	4.0	0.2	4.2
Pinus sylvestris	Scotch pine	1.0	0.1	1.1
Pinus virginiana	Virginia pine	4.0	0.5	4.5
Acer negundo	Boxelder maple	4.5	0.9	5.4
Acer rubrum	Red maple	46.0	6.4	52.4
Acer saccharinum	Silver maple	1.5	0.3	1.8
Acer saccharum	Sugar maple	44.0	7.9	51.9
Aesculus sp.	Buckeye	2.0	0.1	2.1
Ailanthus sp.	Ailanthus	1.0	(t)	1.0
Betula alleghaniensis	Yellow birch	1.0	(t)	1.0
Betula lenta	Black birch	0.5	(t)	0.5
Carpinus caroliniana	American hornbeam	5.5	0.6	6.1
Carya sp.	Hickory	41.5	4.5	46.0
Castanea dentata	American chestnut	1.0	0.1	1.1
Celtis occindentalis	Hackberry	4.5	0.3	4.8
Ceris canadensis	Eastern redbud	23.5	2.6	26.1
Cornus florida	Flowering dogwood	54.0	7.6	61.6
Cataegies sp.	Hawthorn	9.0	1.5	10.5
Diospyros virginiana	Common persimmon	3.0	0.2	3.2
Fagus grandifolia	American beech	9.5	0.5	10.0
Fraxinus americana	White ash	51.0	6.2	57.2
Fraxinis ingra	Black ash	1.0	(t)	1.0
Fraxinus pennsylvanica	Green ash	1.0	(t)	1.0
Fraxinus quadrangulata	Blue ash	1.5	0.1	1.6
Gleditsia triacanthus	Honeylocust	4.0	0.2	4.2
Ilex monticola	Large leaf holly	1.0	(t)	1.0
Juglans cinerea	Butternut	0.5	(t)	0.5
Juglans nigra	Black walnut	5.0	0.4	5.4
Liriodendron tulipifera	Yellow-poplar	17.0	2.0	19.0
Maclura pomifera	Osage orange	0.5	(t)	0.5
Pyrus malus	Domestic apple	0.5	(t)	0.5
Pyrus coronaria	Crab apple	1.5	0.2	1.7
Morus sp.	Mulberrry	0.5	(t)	0.5
Morus rubra	Red mulberry	0.5	(t)	0.5
Nyssa sylvatica	Black tupelo	16.5	1.2	17.7
Ostrya virginiana	Eastern hophornbeam	4.0	0.4	4.4
Oxdendrum arboreum	Sourwood	13.0	1.0	14.0
Platanus occidentalis	American sycamore	0.5	(t)	0.5
Populus grandidentata	Bigtooth aspen	1.5	0.1	1.6
Populus tremuloides	Quaking aspen	0.5	(t)	0.5
Prunus sp.	Cherry	5.5	0.4	5.9
Prunus pensylvanica	Pin cherry	0.5	0.1	0.6
Prunus serotina	Black cherry	17.0	1.6	18.6
Prunus virginiana	Chokecherry	2.0	0.1	2.1
Quercus alba	White oak	18.0	1.2	19.2
Quercus bicolor	Swamp white oak	0.5	(t)	0.5
Quercus coccinea	Scarlet oak	3.0	0.2	3.2
Quercus imbricaria	Shingle oak	1.5	0.1	1.6

Table 16.--continued

Scientific name	Common species name	Relative		
		Frequency	Density	Sum
Quercus macrocarpa	Bur oak	2.0	0.2	2.2
Quercus michauxii	Swamp chestnut oak	0.5	(t)	0.5
Quercus palustris	Pin oak	1.0	0.1	1.1
Quercus prinus	Chestnut oak	15.5	3.4	18.9
Quercus rubra	Northern red oak	16.0	1.0	17.0
Quercus stellata	Post oak	0.5	(t)	0.5
Quercus velutina	Black oak	23.5	2.1	25.6
Robinia pseudoacacia	Black locust	6.5	0.3	6.8
Salix sp.	Willow	0.5	(t)	0.5
Sassafras albidum	Sassafras	55.5	11.0	66.5
Comptonia peregrina	Sweetfern	0.5	(t)	0.5
Corylus americana	American hazelnut	4.5	0.4	4.9
Lindera benzoin	Common spicebush	28.0	5.5	33.5
Hamamelis virginiana	Witch-hazel	4.0	0.5	4.5
Tilia americana	American basswood	1.5	0.2	1.7
Amelanchier canadensis	Serviceberry	6.0	0.6	6.6
Rubus sp.	Briers	2.5	0.4	2.9
Rosa sp.	Rose	2.5	0.8	3.3
Rhus glabra	Smooth sumac	5.5	0.9	6.4
Rhus typhina	Staghorn sumac	1.5	0.2	1.7
Rhus radicans	Poison ivy	8.5	vine[d]	vine
Kalmia latifolia	Mountain laurel	0.5	0.1	0.6
Gaylussacia sp.	Huckleberry	4.0	1.3	5.3
Ulmus sp.	Elm	51.5	9.0	60.5
Vaccinum sp.	Blueberry	7.5	2.2	9.7
Viburnum acerifolium	Maple-leaved viburnum	4.0	1.2	5.2
Viburnum dentatum	Dentate viburnum	1.0	0.1	1.1
Viburnum lentago	Sweet viburnum	1.0	0.1	1.1
Viburnum prunifolium	Blackhaw	3.0	0.4	3.4
Samaucus canadensis	Common elderberry	1.0	0.1	1.1
Smilax rotundifolia	Common greenbrier	1.5	vine	vine
Parthenocissus quinquefolia	Virginia creeper	2.5	vine	vine
Vitis sp.	Grape	1.5	vine	vine
Lonicera canadensis	American honeysuckle	1.0	0.2	1.2
Lonicera dioica	Glaucous honeysuckle	0.5	vine	vine

[a] The proportion of forested plots (n=202) on which the species was recorded.

[b] Estimated number of species stems as a proportion of the total estimated number of seedling, sapling, and shrub stems.

[c] Names according to: Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U. S. Department of Agriculture; 1979. 375 p. and Symonds, George W.D. The shrub identification book. New York: William Morrow and Company; 1963. 379 p.

[d] Stem counts not made for vine species so density estimates cannot be made.

t-Trace, less than 0.5 percent.

Table 17.--Number of saplings, seedlings, and shrubs on timberland, excluding national forest lands, by species and browse utilization class, south-central Ohio, 1979

(In millions)

Species/ species group	Browse utilization class				Total stems	Percent saplings
	No use	Light use	Moderate use	Heavy use		
Eastern redcedar	119.3	6.9	-	-	126.2	28.3
Eastern white pine	11.0	-	-	-	11.0	28.2
Virginia pine	23.1	-	-	-	23.1	44.2
Other coniferous	15.8	0.8	-	-	16.6	13.9
Total coniferous	169.2	7.7	-	-	176.9	29.0
Boxelder maple	43.9	-	-	-	43.9	
Red maple	295.7	20.5	-	2.2	318.4	10.1
Sugar maple	361.3	8.8	20.4	5.0	395.5	13.4
Other maples	14.7	-	-	-	14.7	
American hornbeam	27.7	-	-	-	27.7	19.1
Hickories	220.8	0.7	-	1.5	223.0	10.9
Hackberry	17.3	-	-	-	17.3	34.1
Eastern redbud	123.2	5.7	-	-	128.9	
Flowering dogwood	362.3	8.4	5.5	1.6	377.8	21.3
Hawthorn	76.6	-	0.7	-	77.3	2.7
American beech	26.5	-	-	-	26.5	9.4
White ash	269.8	19.7	9.9	9.0	308.4	10.1
Other ash	8.2	-	-	-	8.2	18.3
Yellow-poplar	95.8	3.7	-	-	99.5	26.6
Crab apple	7.1	-	4.4	-	11.5	
Black tupelo	56.2	2.2	0.7	-	59.1	
Eastern hophornbeam	16.6	3.0	-	-	19.6	
American hazelnnut	18.4	-	-	-	18.4	
Black cherry	80.6	-	-	-	80.6	9.1
Other Prunus sp.	31.1	1.0	-	-	32.1	13.7
White oak	58.6	-	-	-	58.6	35.3
Chestnut oak	162.9	5.8	-	-	168.7	8.8
Other white oaks	15.5	-	-	-	15.5	34.2
Northern red oak	45.3	3.0	-	-	48.3	14.9
Black oak	101.6	1.4	-	-	103.0	7.4
Other red oaks	16.2	2.2	-	-	18.4	3.3
Sassafras	542.4	5.0	-	-	547.4	6.0
Common spicebush	268.6	4.2	-	-	272.8	
Witch-hazel	24.8	-	-	-	24.8	
Serviceberry	27.7	-	-	-	27.7	
Rubus sp.	15.9	2.6	-	-	18.5	
Rosa sp.	35.7	1.9	-	-	37.6	
Sumac sp.	52.8	2.0	-	-	54.8	
Huckleberry	57.4	8.7	-	-	66.1	
Elm	426.4	10.0	14.1	-	450.5	12.8
Blueberry	105.6	2.9	-	-	108.5	
Maple-leaved viburnum	46.0	-	16.1	-	62.1	
Blackhaw	17.8	-	-	-	17.8	
Other viburnum	3.6	4.9	-	-	8.5	
Other deciduous	407.3	7.2	6.6	-	421.1	30.3
Total deciduous	4,585.9	135.5	78.4	19.3	4,819.1	11.4
Total, all stems	4,755.1	143.2	78.4	19.3	4,996.0	12.1

Table 18.--Number of standing dead and live rotten cull trees on timberland, excluding national forest lands, by diameter class, condition, and presence of cavities, south central Ohio, 1979

(In thousands of trees)

Size Class	With cavities	Without cavities	Total stems	Percent with cavities
Poletimber (5.0 - 9.9)				
Dead, intact top	367.5	2,966.9	3,334.4	11.0
Dead, broken top	1,538.8	2,635.0	4,173.8	36.9
Subtotal dead	1,906.3	5,601.9	7,508.2	25.4
Live, broken top	0	425.9	425.9	0
Live, intact dead top	0	124.0	124.0	0
Live, intact live top	1,797.0	16,065.1	17,862.1	10.1
Subtotal live	1,797.0	16,615.0	18,412.0	9.8
Total poletimber	3,703.3	22,216.9	25,920.2	14.3
Small sawtimber (10.0 - 14.9)				
Dead, intact top	180.5	487.2	667.7	27.0
Dead, broken top	673.8	571.3	1,245.1	54.1
Subtotal dead	854.3	1,058.5	1,912.8	44.7
Live, broken top	25.3	173.7	199.0	12.7
Live, intact dead top	0	61.0	61.0	0
Live, intact live top	769.9	6,294.3	7,064.2	10.9
Subtotal live	795.2	6,529.0	7,324.2	10.9
Total small sawtimber	1,649.5	7,587.5	9,237.0	17.9
Large sawtimber (15.0 +)				
Dead, intact top	124.5	124.5	249.0	50.0
Dead, broken top	357.7	99.5	457.2	78.2
Subtotal dead	482.2	224.0	706.2	68.3
Live, broken top	64.8	58.6	123.4	52.5
Live, intact dead top	19.3	0	19.3	100.0
Live, intact live top	991.7	2,582.8	3,574.5	27.7
Subtotal live	1,075.8	2,641.4	3,717.2	28.9
Total large sawtimber	1,558.0	2,865.4	4,423.4	35.2
Total dead	3,242.8	6,884.4	10,127.2	32.0
Total live	3,668.0	25,785.4	29,453.4	12.5
Total	6,910.8	32,669.8	39,580.6	17.5

Table 19.--Number of standing dead and live rotten cull trees on timberland, excluding National Forest lands, by species or species group, the presence of cavities, diameter class, and live/dead, South-Central Ohio, 1979

(In thousands of trees)

Species/ species group	Without cavities						With cavities					
	Pole		Small saw		Large saw		Pole		Small saw		Large saw	
	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live
Eastern redcedar	0	105.7	0	50.2	0	0	0	0	0	0	0	0
White/red pine	0	0	0	0	0	0	103.0	0	0	0	0	0
Virginia pine	88.2	450.8	123.1	335.0	19.5	37.4	0	0	0	0	19.5	0
Other softwoods	201.1	570.5	41.0	304.6	0	59.4	0	0	0	0	0	0
Total softwoods	289.3	1,127.0	164.1	689.8	19.5	96.8	103.0	.0	.0	.0	19.5	.0
Red maple	0	1,248.1	0	106.8	0	95.1	101.2	348.6	0	146.9	0	59.3
Sugar maple	131.6	1,062.8	67.6	684.2	18.5	315.8	201.1	96.1	33.0	163.8	15.2	194.7
Hickory	272.6	969.9	82.2	319.4	23.2	181.9	0	467.3	34.3	0	35.7	16.6
Beech	0	163.9	0	0	0	18.2	0	0	0	0	44.6	53.6
White ash	246.3	357.5	0	284.4	0	107.7	0	0	0	70.8	0	5.2
Black walnut	0	71.3	0	338.1	27.8	7.6	0	0	0	26.5	0	0
Yellow poplar	0	201.5	0	134.5	0	90.1	58.7	112.3	37.5	21.6	0	47.1
Sycamore	0	135.8	0	0	12.8	17.0	0	0	0	55.5	0	84.2
Aspen	0	0	0	36.7	0	5.4	96.7	0	0	0	0	2.2
Black cherry	61.2	653.4	0	106.8	0	66.5	140.5	0	0	0	0	72.3
Selected white oaks	880.1	1,819.3	49.6	1,083.1	25.9	498.8	176.4	0	187.0	29.6	70.6	52.6
Northern red oaks	0	460.4	0	315.0	0	225.5	266.5	0	39.5	33.1	25.1	66.1
Other white oaks	128.0	683.5	95.6	895.0	24.4	329.2	123.3	74.4	109.1	31.7	85.7	50.2
Other red oaks	393.1	873.5	184.2	618.8	50.8	335.1	0	0	0	68.9	36.4	110.6
Black locust	1,838.5	1,823.4	210.9	285.5	21.1	104.9	220.0	297.3	378.9	121.5	117.9	136.7
Elm	0	516.4	124.4	212.8	0	49.6	0	0	0	0	0	10.1
Other hardwoods	1,361.2	4,447.3	79.9	418.1	0	96.2	418.9	401.0	35.0	25.3	31.5	114.3
Total hardwoods	5,312.6	15,488.0	894.4	5,839.2	204.5	2,544.6	1,803.3	1,797.0	854.3	795.2	462.7	1,075.8
Total, all species	5,601.9	16,615.0	1,058.5	6,529.0	224.0	2,641.4	1,906.3	1,797.0	854.3	795.2	482.2	1,075.8

Table 19.--continued

Species/ species group	Subtotal Dead	Percent with cavities	Subtotal Live	Percent with cavities	Total	Percent with cavities
Eastern redcedar	0	-	155.9	0	155.9	0
White/red pine	103.0	100	0	-	103.0	100
Virginia pine	250.3	7.8	823.2	0	1,073.5	1.8
Other softwoods	242.1	0	934.5	0	1,176.6	0
Total softwoods	595.4	20.6	1,913.6	0	2,509.0	4.9
Red maple	101.2	100	2,004.8	27.7	2,106.0	31.2
Sugar maple	467.0	53.4	2,517.4	18.1	2,984.4	23.6
Hickory	448.0	15.6	1,955.1	24.8	2,403.1	23.1
Beech	44.6	100	235.7	22.7	280.3	35.0
White ash	246.3	0	825.6	9.2	1,071.9	7.1
Black walnut	27.8	0	443.5	6.0	471.3	5.6
Yellow-poplar	96.2	100	607.1	29.8	703.3	39.4
Sycamore	12.8	0	292.5	47.8	305.3	45.8
Aspen	96.7	100	44.3	5.0	141.0	70.1
Black cherry	201.7	69.7	899.0	8.0	1,100.7	19.3
Selected white oaks	1,389.6	31.2	3,483.4	2.4	4,873.0	10.6
Northern red oaks	331.1	100	1,100.1	9.0	1,431.2	30.1
Other white oaks	566.1	56.2	2,064.0	7.6	2,630.1	18.0
Other red oaks	664.5	5.5	2,006.9	8.9	2,671.4	8.1
Black locust	2,787.3	25.7	2,769.3	20.1	5,556.6	22.9
Elm	124.4	0	788.9	1.3	913.3	1.1
Other hardwoods	1,926.5	25.2	5,502.2	9.8	7,428.7	13.8
Total hardwoods	9,531.8	32.7	27,539.8	13.3	37,071.6	18.3
Total, all species	10,127.2	32.0	29,453.4	12.5	39,580.6	17.5

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Brooks, Robert T. Forest land wildlife habitat resources of south-central Ohio. NE-RB-94. Broomall, PA: U.S. Department of Agriculture, Forest Service; Northeastern Forest Experiment Station; 1986. 32 p.

A report on the first survey of south-central Ohio's forest land widlife habitat resource. Results are estimates derived from the sample-based 1978 forest inventory of the 10-county region. Nineteen tables describing forest area, forest ownership, and snag, mast, and browse resources are included and discussed.

Keywords: Forest survey, area, ownership, snags, mast, browse resources.

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Ohio Timber Products Output--1983

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Abstract

The total industrial harvest in Ohio was over 82 million cubic feet in 1983. This was up 17 percent since 1978. Sawlogs accounted for 57 percent of the total and pulpwood accounted for 36 percent. During this 5-year period, sawlog production was up 7 percent to 318.3 million board feet, and total pulpwood production was up 24 percent to 461.8 thousand cords. Consumption of sawlogs at Ohio mills rose 19 percent with 17 percent of the receipts coming from neighboring states. The use of manufacturing residues produced at Ohio mills increased from 79 percent to 93 percent. The largest use of residues was for fuel.

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November 1986

Cover Photo: Sawlogs are the major product harvested from Ohio's forests. Here a large oak is being felled on a farmer's woodlot in northern Ohio.

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Background

The forests of Ohio are an important part of the maturing hardwood resource in the Northeastern United States. Productive timberland[1] covers 26 percent of the State or 6.9 million acres.

Three million of these acres are in valuable sawtimber stands; the predominant forest type is oak/hickory. In 1978, it was estimated that 19.5 billion board feet of timber were growing in Ohio with 37 percent of this volume in log grades 1 and 2. At that time it was also estimated that the net annual growth was more than twice the annual removals.

This forest resource supplies raw materials for a viable forest products industry that includes 318 sawmills, 6 veneer mills, and 5 pulpmills. Ohio is well known for its production of high-grade lumber and veneers. Sawmills and veneer mills use the higher quality logs for fine furniture and export, while the lower quality logs are used to supply the pallet mills, the pulpmills, and a variety of other uses. Pulpmills also use a considerable quantity of residues produced by sawmills.

[1]This term and others are defined in the definition of terms.

Forest products are used by many industries in Ohio. Railroad ties are used to maintain the State's extensive rail system, pallets and dunnage are used extensively to ship Ohio products, wood chips are used by the metallurgical industry in the smelting of some ores, mine props are used for the underground mining of coal, lumber and fencing are important to agriculture, and the production of woodpulp supplies the needs of many secondary manufacturers in the paper products industry.

Study Method

The Forest Service of the U.S. Department of Agriculture periodically surveys the primary wood products industries to provide up-to-date information on the Nation's timber supply. This study was conducted jointly with the Ohio Division of Forestry. Information in this 1983 report updates a similar study conducted by the Northeastern Forest Experiment Station and the Ohio Division of Forestry in 1978. The information in this report was obtained by canvassing all primary wood-product manufacturers that were operating in Ohio in 1983. The list of firms operating during 1983 was assembled by the Ohio Division of Forestry. The primary manufacturers were initially contacted by a mailed questionnaire. Probable out-of-state consumers of Ohio roundwood also received questionnaires. After three mailings, those mill owners in Ohio who did not respond were contacted in person by Ohio Division of Forestry personnel; nonresponding out-of-state primary manufacturers were contacted by telephone.

In compiling the tables in this report an improved conversion factor was used to convert mill receipts reported in the Doyle Log Rule to the International 1/4-inch Log Rule. During the 1978 survey, a general factor for the northeastern states was used (Nevel and Redett 1980). It was found subsequently that the average log in Ohio was much larger in diameter than the average log in the Northeast, so a more specific

conversion factor was used for the 1983 study.

The conversion factor was developed from the measurements of over 1,500 logs measured by the Forest Service during a utilization study conducted in Ohio. During this study it was found that the average sawlog in Ohio had an inside bark diameter at the small end of the log of 14.38 inches. Using this average diameter and a length of 12 feet, we calculated that 1 board foot Doyle was equivalent to 1.2826 board feet International. To make comparisons between this study and the 1978 study more accurate, the 1978 figures in this report have been converted using the new conversion factor.

Total Harvest

The industrial roundwood harvest includes sawlogs, veneer logs, pulpwood, cooperage logs, mine timbers, posts, metallurgical chips, and wood used by other miscellaneous primary wood users. Over 82 million cubic feet of wood was harvested from Ohio timberlands during 1983. Hardwoods were the major species group harvested making up over 98 percent of the harvest. Total production was up 17 percent from 1978 production, with most of the gain occurring in the pulpwood segment. This represented a return to the higher levels of production in the past and was above the 1973 level of 80 million cubic feet (Bones and Redett 1976) (Fig. 1).

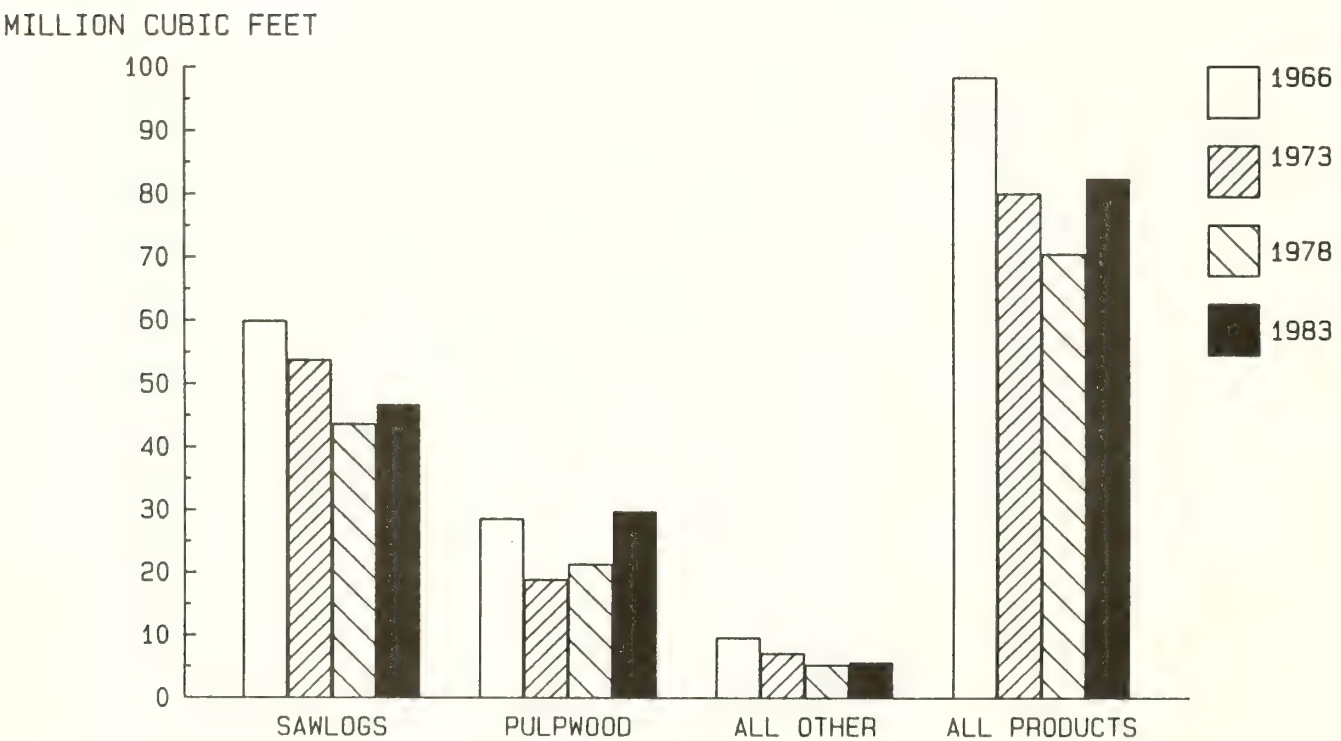

Figure 1.--Trend in industrial harvest in Ohio for selected years, by product.

Since 1973, emphasis has been shifting between sawlog production and pulpwood production. Although sawlogs are still the most important roundwood product, pulpwood has been slowly increasing its share of the total. Sawlog roundwood accounts for 57 percent of the 1983 production (Fig. 2). This was down from the 62 percent share in 1978 and the 67 percent share in 1973. At the same time, pulpwood increased its share advancing from 24 percent in 1973 to 30 percent in 1978, then to 36 percent in 1983. All other products combined made up 7 percent of the total harvest with little change over the years.

The Hill Country of Ohio (South-Central, Southeastern, and East-Central units) produced 78 percent of Ohio's timber (Fig. 3). This area comprises the 28 counties in the unglaciated portion of the state. The South-Central Unit has always had the highest roundwood harvest and in 1983, produced over half of Ohio's pulpwood and 23 percent of the sawlog harvest.

The Northeastern and Western units of Ohio produced the remaining 22 percent of the harvest. This is the glaciated region of the State where agriculture is the predominant land use. Although this area grows a relatively small part of the total harvest, 56 percent of the veneer logs harvested in the state were grown here.

Sawlog Production and Receipts

Sawlog production in 1983 was 318.3 million board feet. This is a 7 percent (21 million board feet) increase since 1978, but still 33 million board feet short of the 1973 sawlog harvest. We believe that the 1983 production level

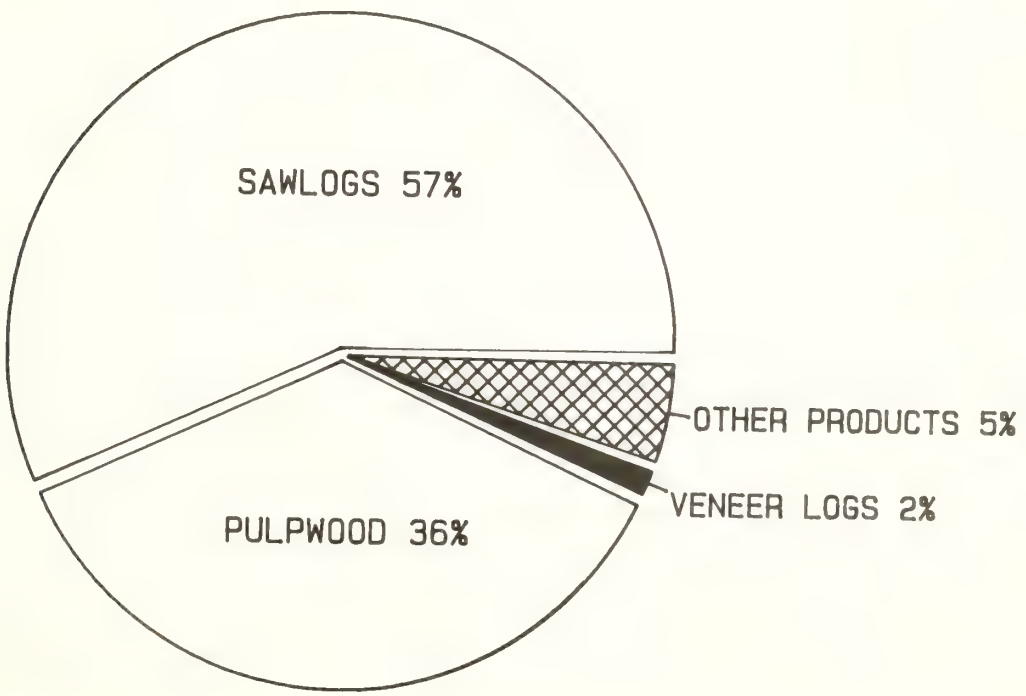

Figure 2.--Ohio timber harvest, 1983. Note: Other products include cooperage, mine timbers, and misc. products.

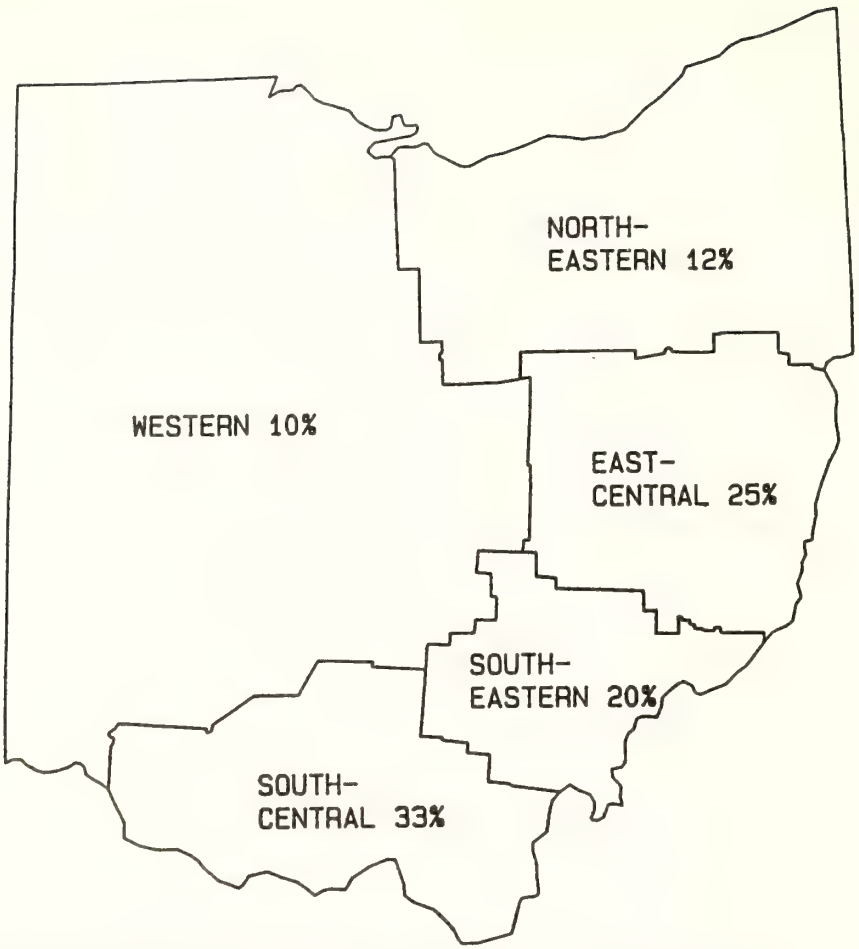

Figure 3.--Geographic units of Ohio and percent of total harvest.

represents the end of the downward trend in production and production has stabilized at this level.

A wide variety of species make up the sawlog harvest; however, the oaks are the predominant species group (Fig. 4). Oaks comprise 52 percent of the sawlog harvest. Northern red oak leads all other species with 52.5 million board feet cut followed by white oak with 48.5 million board feet. Other major species and their production are: yellow-poplar with 31.3 million board feet; ash with 22.0 million board feet, and sugar maple with 19.8 million board feet.

The receipts of sawlogs at the 318 sawmills in Ohio climbed 19 percent to reach 376.5 million board feet. Over half of this increase came from receipts of logs from neighboring states. These imports more than tripled, rising from 20 million in 1978 to 62.3 million in 1983. The largest exporter of logs to Ohio was West Virginia, shipping 23 million board feet into the State. The remainder of the imports were divided between Indiana, Kentucky, and Pennsylvania. Imports accounted for 17 percent of the sawlogs consumed at Ohio mills, and 70 percent of these in-shipments were oak species. This large volume of oak logs coming into the State indicates the high demand for oak logs by Ohio mills. Oak lumber is desirable for both its appearance for fine furniture and its strength for pallets. Also, higher prices paid by Ohio mills have allowed wood to be drawn to Ohio from greater distances.

Pulpwood Production

Pulpwood production rose 24 percent in Ohio since 1978, to total 461,800 cords

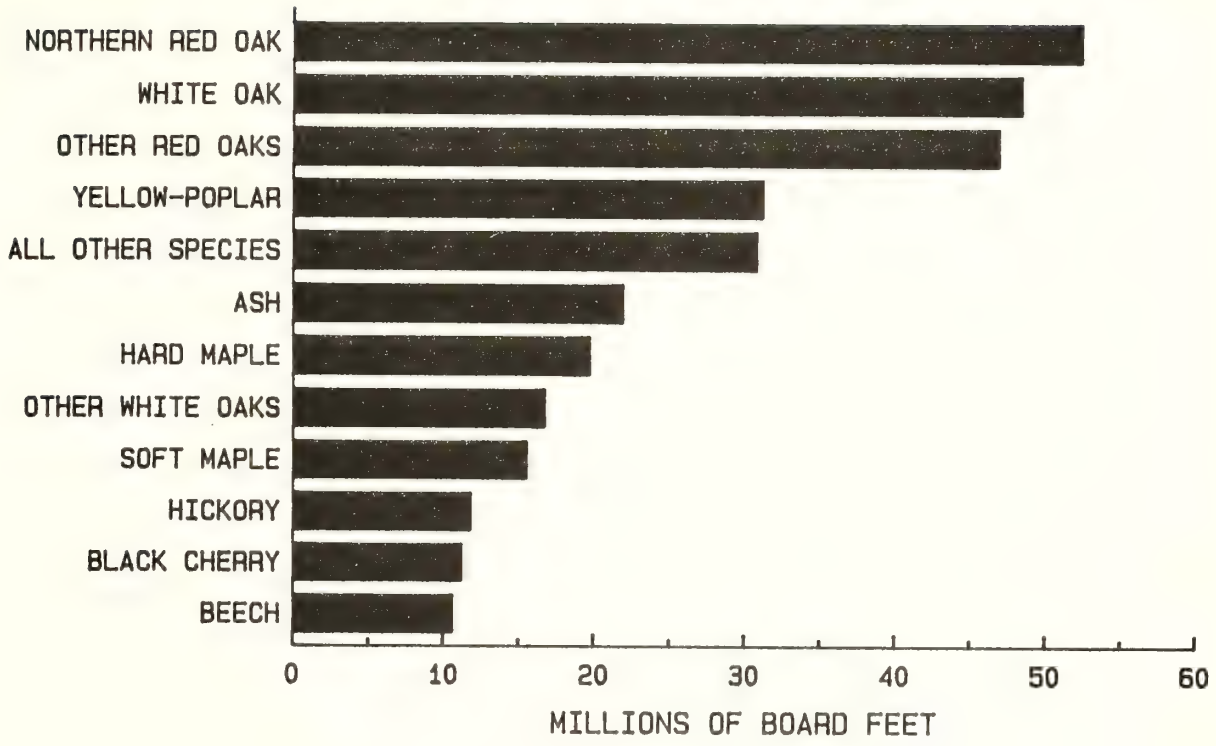

Figure 4.--Ohio sawlog production in 1983 by species.

(Fig. 5). All of this increase came from increased roundwood production. The roundwood harvest for pulpwood increased 99,100 cords reaching 350,900 cords and now accounts for 36 percent of all the roundwood harvested in the State (Widmann 1985). This is up from the 30 percent share of the harvest that pulpwood held in 1978.

Between 1978 and 1983, the use of manufacturing residues for pulp declined 7 percent to 110,900 cords to account for 24 percent of the pulpwood production (Fig. 6). These residues are generally coarse materials produced by sawmills such as slabs and edgings that are suitable for chipping. With increases in sawlog receipts by sawmills, residue use for pulpwood would be expected to increase. However, this did not occur because these residues are going to other uses such as fuel. In recent years, there have been more uses and increased competition for residues. As residue receipts at pulpmills fell, they were replaced by roundwood. This accounts for some of the increase in roundwood production.

From 1978-83, roundwood pulpwood production steadily increased, without the large fluctuations seen in the past. The production of pulpwood has provided a reliable market for logs of small diameter, low quality, and less desirable species. The increased use of whole-tree chippers has allowed more of the smaller trees and upper stem portion of sawtimber trees to be utilized. Pulpwood can be produced economically with whole-tree chippers from material that was unused previously. In 1983, 83 percent of Ohio's pulpwood roundwood was in the form of whole-tree chips. Although the chipping of trees in the

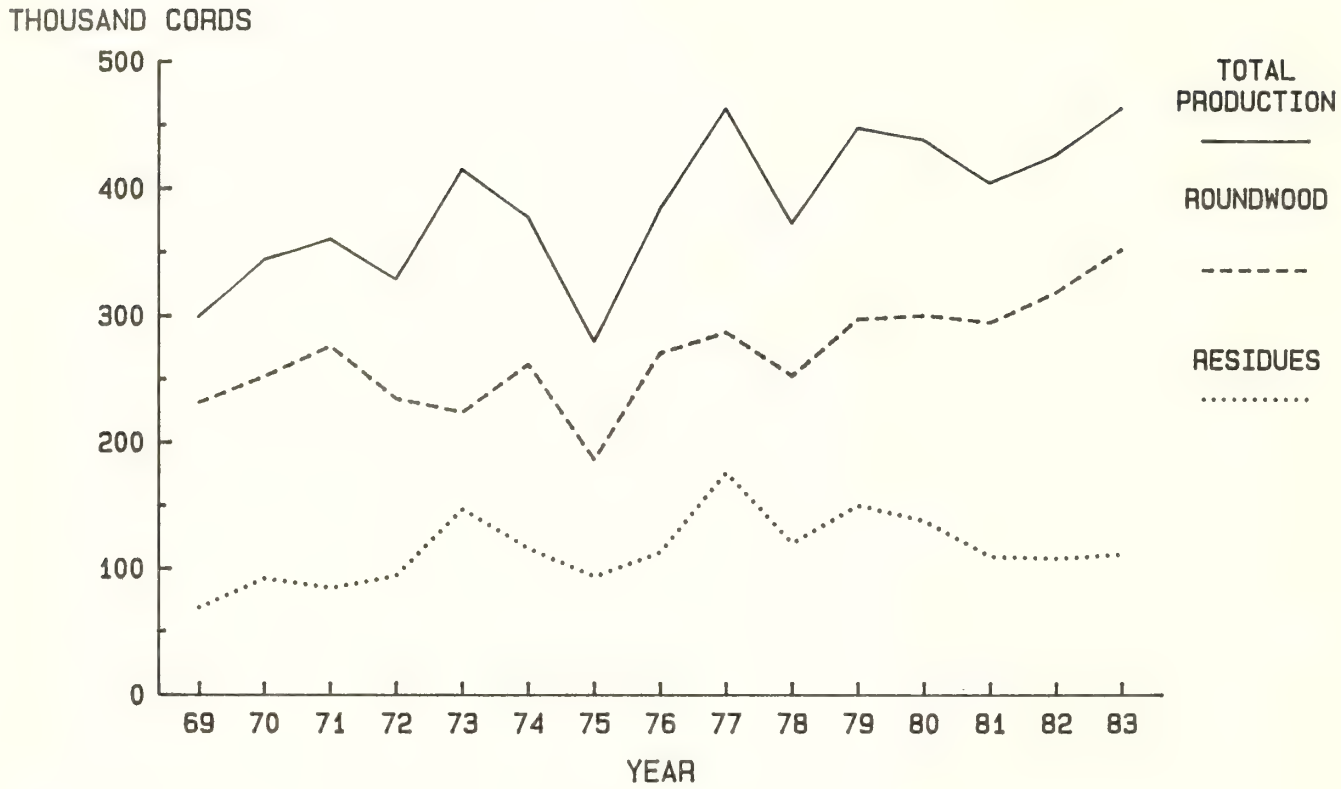

Figure 5.--Pulpwood production, by source, Ohio, 1969-1982.

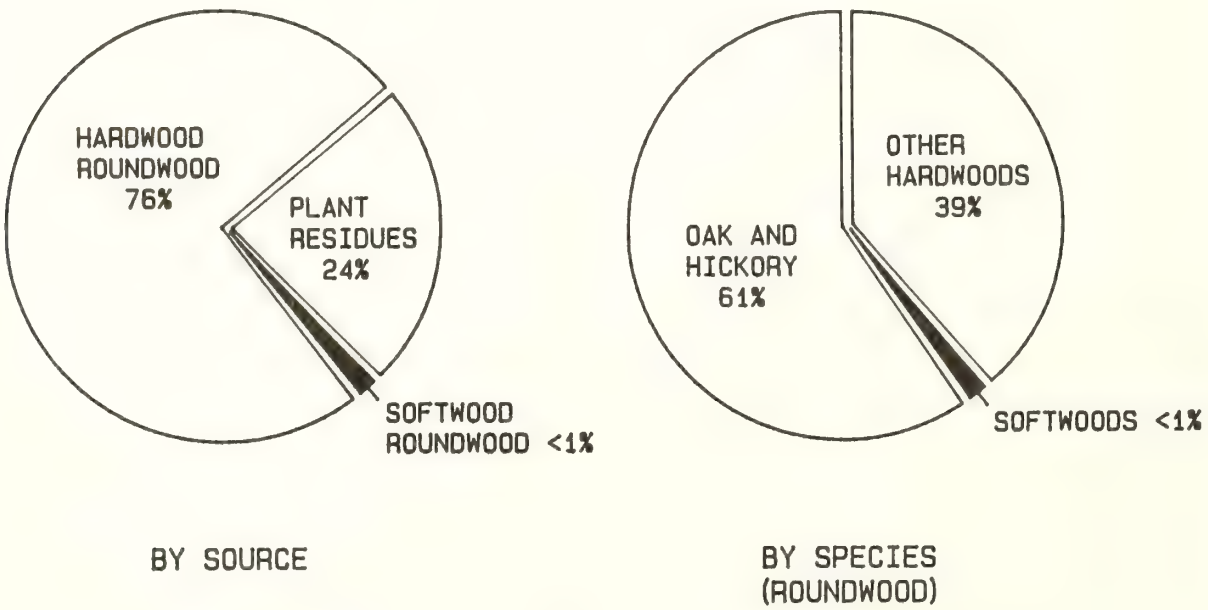

Figure 6.--Ohio pulpwood production in 1983.

woods increased during this 5-year period, the demand for these chips by pulpmills has probably leveled off. This is because of increased emphasis on producing higher quality pulps, which is more difficult when whole-tree chips are used.

Veneer Log Production

Veneer log production was up by 1.6 million board feet (21 percent) between 1978 and 1983 to total 9.4 million board feet. This represents a 10-year high for veneer production. The primary species was white oak, which represents 48 percent of the veneer harvest. Other important species harvested were black walnut and northern red oak, each with 1.3 million board feet harvested or 14 percent of the total.

Ohio remained a net importer of veneer logs in 1983. Imports into the State totaled 5.1 million board feet, while exports totaled 4.8 million board feet. Indiana and Michigan were the source of 61 percent of Ohio's veneer imports. Indiana was the destination of 82 percent of the exports. This high volume in interstate shipments is an indicator of the high value and high demand for these logs. Veneer mills hundreds of miles apart compete with one another for these high-quality logs. Interstate shipments are also encouraged by different species and quality requirements of individual mills.

Cooperage Production

Receipts of white oak logs at Ohio stave mills continued to decline. After reaching a peak of 17.3 million board feet in 1964, the number of mills and log receipts has fallen dramatically. In 1983, receipts were down to 4.5 million board feet, about two-thirds of which were harvested in Ohio. This sharp decline in the cooperage industry has been caused by a change in regulations permitting the reuse of bourbon barrels and a decline in bourbon production.

Miscellaneous Products

A variety of small wood-using industries used 3.9 million cubic feet of roundwood, 5 percent of the 1983 harvest in Ohio. Although these industries consume a relatively small amount of wood, they produce products that are needed by other industries in the State. Approximately 919,000 cubic feet of wood were used for mine props and shoring by the underground coal mining industry. This was a 9 percent decrease from 1978 production. The commercial production of posts and poles consumed 618,000 cubic feet, 70 percent of which was produced in Ohio. Ninety-six percent of these posts and poles were produced from softwood species. The production of cabin logs consumed 16,000 cubic feet. This was a new use for Ohio roundwood and has a potential for growth. Most of these logs were softwood species, but a small amount of yellow-poplar was used. Expansion of the cabin log industry could provide an opportunity to use more yellow-poplar, now an underutilized species.

The harvest of ash logs for use as handle stock was 1,074,000 cubic feet or 7.3 million board feet in 1983. Seventy-two percent of this production was received at the three handle plants in Ohio. In 1983, 2 million board feet of ash logs were shipped to out-of-state mills, and almost 2 million were received from other states for use as handle stock. The remaining 1,280,000 cubic feet of wood in the miscellaneous category was used for metallurgical wood and molded wood pallets.

Manufacturing Residues

Primary wood manufacturers produced over 37 million cubic feet of residues in the conversion of roundwood into lumber and other wood products. Ninety-three percent of these residues were used, while only 7 percent went unused (Fig. 7). The majority of the residues were consumed as fuel with 17 percent used for domestic fuel and 21 percent used

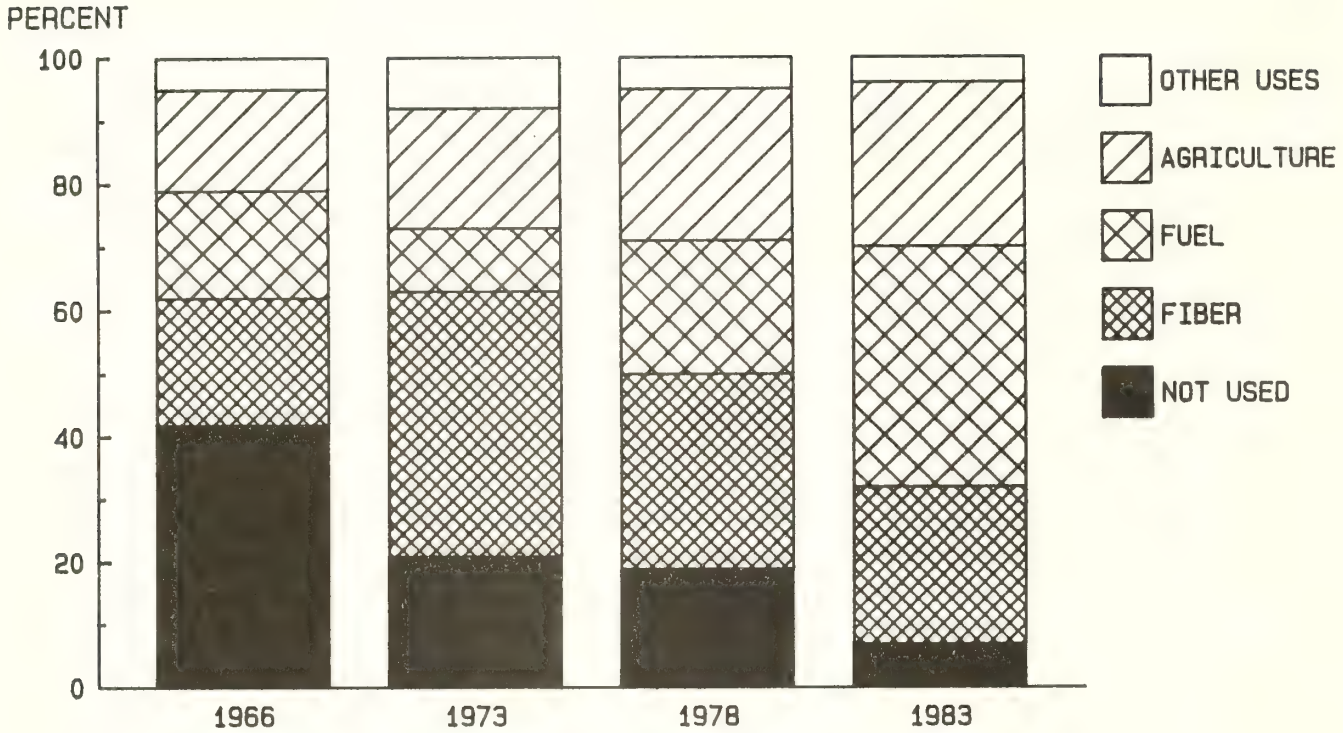

Figure 7.--Trends in manufacturing residue use in Ohio, 1966, 1973, 1978, and 1983.

for industrial fuel. Since 1978, residues have been diverted from use as fiber and the unused category to fuel. During 1978, 31 percent of the residues were used by pulpmills. This declined to 25 percent in 1983. Also, during this period the unused portion of residues fell from 19 percent to only 7 percent. This shift was the result of the rise in oil prices that made burning wood waste a feasible alternative to burning oil. The 7 percent that is currently unused provides little opportunity for increased use. These unused residues are in small quantities, spread across the State. Future changes will probably be shifts to higher value uses for residues that are already being used.

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Appendix

Definition of Terms

Cabin logs. Relatively slender round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness, finished for use in constructing cabins, barns, and other buildings.

Coarse residues. Manufacturing residues, suitable for chipping, such as slabs, edgings, and veneer cores.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Harvest. The aggregate volume of timber produced for industrial or consumer uses.

Industrial timber harvest. Total production of round timber for conversion into wood products, except fuelwood.

Manufacturing plant residues. Wood materials, such as sawmill slabs and edgings, sawdust, veneer clippings and cores, post and pole trimming, and pulp screening generated from the manufacture of roundwood products.

Net growth. The change, resulting from natural causes, in growing-stock volume over a period of time. Components of net growth are ingrowth plus accretion minus mortality and cull increment.

Plant byproducts. Wood products such as pulp chips, recycled from manufacturing plant residues.

Piles (piling). Round timber products cut to the maximum length possible within top-circumference and other specifications of strength, straightness, and soundness to be driven or otherwise introduced into the soil, usually to provide vertical or lateral support in buildings, foundations, and other structures.

Poles. Round timber products cut to standard sizes and meeting specifications of strength, straightness, and soundness to be driven into the soil, usually to provide vertical or lateral support for electric power and telephone transmission lines.

Pulpwood. Roundwood, whole-tree chips, or manufacturing plant residues that are used for the production of woodpulp.

Pulpwood imports. Pulpwood receipts originating from outside the State.

Pulpwood production. Roundwood and manufacturing plant residues used to make woodpulp. These are either harvested or generated in the state.

Roundwood products. Logs, bolts, total-tree chips, mine timbers, fenceposts, poles, and similar timber products generated by harvesting trees for industrial or consumer use.

Posts. Short, round timber products to be used in the upright position to support fence structures.

Primary wood-manufacturing plant. A plant that converts roundwood (round timber) to wood products such as woodpulp, lumber, veneer, cooperage, and dimension.

Roundwood receipts. The roundwood (round timber) products, such as logs and bolts, received by primary wood-manufacturing plants for conversion into wood products.

Sawlog. A roundwood product, from which products such as lumber are sawn, and which meets certain minimum standards of diameter, length, and defect, including a minimum 8-foot length and combination of size and defect specified in regional standards.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. In the Northeast, the measure refers to a stack of wood containing 85 cubic feet, or 2.41 cubic meters, of

solid wood. A standard cord commonly is referred to as a cord, as in this report. This is not the same as a face cord, commonly used in firewood marketing.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization. Formerly known as commercial forest land.

Timber products output. Includes roundwood (round timber) products harvested from growing stock on commercial forest land; from other sources, such as cull trees, salvable dead trees, limbs and tops, and saplings; from trees on noncommercial and nonforest lands; and from manufacturing plant byproducts.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered for use.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum standards of diameter, length, and defect.

Whole-tree chips. Unbarked wood chips generated from the aboveground portion of a tree, including bolewood, limbs, and leaves.

Conversion Factors

Softwood logs: M bf (international 1/4-inch rule) = 154.0 ft^3 = 4.36 m^3

Hardwood logs: M bf (International 1/4-inch rule) = 146.8 ft^3 = 4.16 m^3

1 board foot Doyle Rule = 1.2826 International 1/4 rule

Pulpwood: 1 standard cord = 85 ft^3 = 2.41 m^3

1 green ton aspen--yellow-poplar = 0.5263 cords

1 green ton oak-hickory = 0.3571 cords

1 green ton other hardwoods = 0.3846 cords

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Table 1.--Volume of industrial roundwood, by product harvested, Ohio, 1983

Product	Standard unit	Volume in standard units		
		Softwoods	Hardwoods	All species
Sawlogs	M board feet[a]	2,108	316,145	318,253
Pulpwood	Standard cords[b]	1,100	349,800	350,900
Veneer logs	M board feet[a]	-	9,374	9,374
Cooperage logs	M board feet[a]	-	3,093	3,093
Mine timbers	M cubic feet	75	844	919
Misc. products[c]	M cubic feet	660	2,328	2,988

Product	Roundwood volume			Roundwood volume		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	Thousand cubic feet			Thousand cubic meters		
Sawlogs	325	46,410	46,735	9.2	1,314.2	1,323.4
Pulpwood	93	29,733	29,826	2.6	841.9	844.5
Veneer logs	-	1,376	1,376	-	39.0	39.0
Cooperage logs	-	454	454	-	12.9	12.9
Mine timbers	75	844	919	2.1	23.9	26.0
Misc. products	660	2,328	2,988	18.7	65.9	84.6
Total	1,153	81,145	82,298	32.6	2,297.8	2,330.4

[a] International 1/4-inch rule.
[b] Rough wood basis equivalent to 85 ft^3 of solid wood.
[c] Includes guardrails, handle stock, metallurgical wood, poles, posts and roundwood chips used for molded pallets.

Table 2.—Change in timber products output, Ohio, 1978-83

Product	1966	1973	1978[a]	1983	Change
	Thousand cubic feet[b]				Percent
Sawlogs	59,960	53,858	43,702	46,735	+ 7
Pulpwood	28,619	18,937	21,403	29,826	+39
Veneer logs	1,032	786	1,133	1,376	+21
Cooperage logs	1,697	933	1,033	454	-56
Mine timbers	1,010	1,306	1,010	919	- 9
Misc. products	5,946	4,181	2,192	2,988	+36
Total	98,264	80,001	70,473	82,298	+17

[a] 1978 sawlog totals are based on the 1983 conversion factor.
[b] International 1/4-inch rule.

Table 3.--Industrial timber harvest, a by geographic unit, softwoods and hardwoods, and products, Ohio, 1983

(In thousands of cubic feet)

Geographic unit and species group	Sawlogs	Pulpwood	Other products[b]	All products
South-Central				
Softwoods	72	-	151	223
Hardwoods	10,666	15,580	696	26,942
Total	10,738	15,580	847	27,165
Southeastern				
Softwoods	190	93	217	500
Hardwoods	7,394	7,718	918	16,030
Total	7,584	7,811	1,135	16,530
East-Central				
Softwoods	6	-	240	246
Hardwoods	12,635	5,517	1,981	20,133
Total	12,641	5,517	2,221	20,379
Northeastern				
Softwoods	24	-	31	55
Hardwoods	9,111	510	532	10,153
Total	9,135	510	563	10,208
Western				
Softwoods	33	-	96	129
Hardwoods	6,604	408	875	7,887
Total	6,637	408	971	8,016
All units				
Softwoods	325	93	735	1,153
Hardwoods	46,410	29,733	5,002	81,145
Total	46,735	29,826	5,737	82,298

[a]Does not include fuelwood or removals that were not manufactured into industrial products.

[b]Includes guardrails, handle stock, metallurgical wood, poles, posts, and roundwood chips used for molded pallets.

Table 4.—Number of operating sawmills, by geographic unit and annual production class, Ohio, 1973, 1978, and 1983

Geographic unit	Production class[a]											
	More than 1 million board feet			Between 100 thousand and 1 million board feet			Idle and mills[b] less than 100 thousand board feet			Total		
	1973	1978	1983	1973	1978	1983	1973	1978	1983	1973	1978	1983
South-Central	18	26	16	18	55	34	21	13	39	57	94	89
Southeastern	18	21	20	8	8	11	9	7	9	35	36	40
East-Central	18	17	22	27	16	14	17	27	12	62	60	48
Northeastern	17	27	20	32	9	28	21	21	17	70	57	65
Western	15	29	15	37	20	19	34	30	42	86	79	76
All units	86	120	93	122	108	106	102	98	119	310	326	318

[a]Based on sawlog receipts or reported annual lumber production capacity.
[b]This class includes all custom mills in the 1973 and 1978 figures.

Table 5.—Sawlog production and receipts relationships, by geographic unit, Ohio, between 1978 and 1983

Geographic unit	Production			Receipts		
	1978[a]	1983	Change	1978	1983	Change
	Million board feet[b]		Percent	Million board feet		Percent
South-Central	78.8	73.1	- 7	85.1	72.9	-14
Southeastern	51.0	51.6	+ 1	66.8	86.2	+29
East-Central	70.7	86.2	+ 1	75.0	89.7	+ 9
Northeastern	39.0	62.2	+53	44.5	77.8	+74
Western	57.7	45.2	-22	44.5	49.9	+12
All units	297.2	318.3	+ 7	315.9	376.5	+19

[a]1978 sawlog totals are based on the 1983 conversion factor.
[b]International 1/4-inch rule.

Table 6.--Sawlog production, by softwoods and hardwoods, geographic unit and destination of shipment, Ohio, 1983

(In millions of board feet)[a]

Species group and geographic unit	Retained in unit	Logs shipped to:		Total production
		Other units	Other states	
Softwoods				
South-Central	0.3	0.2	-	0.5
Southeastern	1.2	-	-	1.2
East-Central	.1	-	-	.1
Northeastern	.1	-	-	.1
Western	*	.2	-	.2
Total softwoods	1.7	0.4	-	2.1
Hardwoods				
South-Central	53.1	19.0	0.5	72.6
Southeastern	44.0	6.0	.4	50.4
East-Central	62.1	23.6	.4	86.1
Northeastern	48.2	13.2	.7	62.1
Western	31.2	11.7	2.1	45.0
Total hardwoods	238.6	73.5	4.1	316.2
All species	240.3	73.9	4.1	318.3

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 7.—Sawlog receipts, by softwoods and hardwoods, geographic unit and origin of shipment, Ohio, 1983

(In millions of board feet)[a]

Species group and geographic unit	Where produced			Total receipts
	In unit	In state	In other states	
Softwoods				
South-Central	0.3	-	-	0.3
Southeastern	1.2	0.4	-	1.6
East-Central	.1	-	-	.1
Northeastern	.1	-	0.1	.2
Western	*	-	-	*
Total softwoods	1.7	0.4	0.1	2.2
Hardwoods				
South-Central	53.1	2.7	16.8	72.6
Southeastern	44.0	28.1	12.5	84.6
East-Central	62.1	19.6	7.9	89.6
Northeastern	48.2	20.2	9.2	77.6
Western	31.2	2.9	15.8	49.9
Total hardwoods	238.6	73.5	62.2	374.3
All species	240.3	73.9	62.3	376.5

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 8.--Sawlog production and receipts in the South-Central geographic unit, by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)[a]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	0.1	0.2	-	0.3	*	-	0.1
Other softwoods	.2	-	-	.2	-	-	.2
Total softwoods	0.3	0.2	-	0.5	*	-	0.3
Ash	2.8	0.6	*	3.4	0.4	0.7	3.9
Aspen	.3	*	-	.3	*	*	.3
Basswood	.7	.2	*	.9	*	.2	.9
Beech	1.2	.6	-	1.8	*	.2	1.4
Black cherry	.6	.3	-	.9	*	.3	.9
Elm	.6	.2	-	.8	*	.2	.8
Hickory	2.9	.7	-	3.6	.1	.2	3.2
Black locust	*	-	-	*	-	-	*
Hard maple	2.8	.9	-	3.7	.1	.4	3.3
Soft maple	2.0	.6	0.2	2.8	.1	.3	2.4
White oak	9.8	3.0	.1	12.9	.5	5.1	15.4
Other white oak	4.4	1.6	-	6.0	.3	1.2	5.9
Red oak	7.5	2.8	.1	10.4	.4	2.8	10.7
Other red oaks	9.4	3.2	*	12.6	.5	4.0	13.9
Sycamore	1.1	.6	-	1.7	*	.1	1.2
Black walnut	.9	.6	.1	1.6	.1	.1	1.1
Yellow-poplar	5.0	2.8	-	7.8	.2	.9	6.1
Other hardwoods	1.1	.3	*	1.4	*	.1	1.2
Total hardwoods	53.1	19.0	0.5	72.6	2.7	16.8	72.6
All species	53.4	19.2	0.5	73.1	2.7	16.8	72.9

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 9.—Sawlog production and receipts in the Southeastern geographic unit, by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)[a]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	1.2	*	-	1.2	0.4	-	1.6
Other softwoods	-	-	-	-	-	-	-
Total softwoods	1.2	*	-	1.2	0.4	-	1.6
Ash	2.0	0.3	-	2.3	1.3	0.7	4.0
Aspen	.6	*	-	.6	*	*	.6
Basswood	.5	*	-	.5	.4	.2	1.1
Beech	1.7	.1	0.1	1.9	1.1	.3	3.1
Black cherry	.8	.3	-	1.1	.6	.4	1.8
Elm	.4	.2	-	.6	.4	*	.8
Hickory	1.9	.1	*	2.0	1.1	.6	3.6
Black locust	*	*	-	*	-	-	*
Hard maple	2.3	.2	.1	2.6	1.3	.7	4.3
Soft maple	1.7	.2	-	1.9	1.0	.4	3.1
White oak	7.2	.9	*	8.1	4.4	1.5	13.1
Other white oaks	3.6	.3	*	3.9	2.1	1.6	7.3
Red oak	6.5	.8	*	7.3	4.3	2.2	13.0
Other red oaks	7.6	.9	.1	8.6	4.2	2.4	14.2
Sycamore	.8	.1	-	.9	.7	.3	1.8
Black walnut	.6	.4	-	1.0	.4	.2	1.2
Yellow-poplar	5.0	1.1	.1	6.2	4.4	.9	10.3
Other hardwoods	.8	.1	-	.9	.4	.1	1.3
Total hardwoods	44.0	6.0	0.4	50.4	28.1	12.5	84.6
All species	45.2	6.0	0.4	51.6	28.5	12.5	86.2

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 10.—Sawlog production and receipts in the East-Central geographic unit, by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)[a]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	0.1	-	-	0.1	-	-	0.1
Other softwoods	-	-	-	-	-	-	-
Total softwoods	0.1	-	-	0.1	-	-	0.1
Ash	3.6	2.6	-	6.2	1.2	0.3	5.1
Aspen	.3	.1	-	.4	.2	-	.5
Basswood	.5	.3	-	.8	.1	.1	.7
Beech	2.1	.7	*	2.8	.7	*	2.8
Black cherry	4.3	.9	-	5.2	1.3	.8	6.4
Elm	1.0	.3	-	1.3	.4	.2	1.6
Hickory	1.7	.5	*	2.2	.6	.1	2.4
Black locust	.1	*		.1	*	-	.1
Hard maple	3.6	1.6	*	5.2	1.1	.4	5.1
Soft maple	3.0	1.1	-	4.1	1.1	.2	4.3
White oak	8.6	4.5	0.1	13.2	2.3	.9	11.8
Other white oaks	1.7	.6	.1	2.4	.5	.2	2.4
Red oak	10.1	5.0	*	15.1	3.4	1.5	15.0
Other red oaks	10.5	2.8	.1	13.4	2.5	1.7	14.7
Sycamore	.8	*	-	.8	.2	.1	1.1
Black walnut	1.0	.5	-	1.5	.3	.1	1.4
Yellow-poplar	7.9	1.8	.1	9.8	3.1	1.1	12.1
Other hardwoods	1.3	.3	-	1.6	.6	.2	2.1
Total hardwoods	62.1	23.6	0.4	86.1	19.6	7.9	89.6
All species	62.2	23.6	0.4	86.2	19.6	7.9	89.7

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 11.--Sawlog production and receipts in the Northeastern geographic unit, by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)[a]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	0.1	-	-	0.1	-	0.1	0.2
Other softwoods	-	-	-	-	-	-	-
Total softwoods	0.1	-	-	0.1	-	0.1	0.2
Ash	3.9	1.0	-	4.9	2.2	0.4	6.5
Aspen	.6	.2	-	.8	.2	.1	.9
Basswood	.7	.1	-	.8	.3	.1	1.1
Beech	2.3	.5	-	2.8	.5	.3	3.1
Black cherry	2.5	.9	-	3.4	.7	.5	3.7
Elm	.8	.1	-	.9	.2	.2	1.2
Hickory	1.5	.5	-	2.0	.2	.2	1.9
Black locust	.2	*	-	.2	*	-	.2
Hard maple	4.6	.8	-	5.4	1.7	.6	6.9
Soft maple	3.7	.8	-	4.5	1.1	.6	5.4
White oak	6.4	1.6	-	8.0	3.9	1.0	11.3
Other white oaks	1.3	.5	*	1.8	.5	.4	2.2
Red oak	9.1	2.2	0.1	11.4	4.4	2.0	15.5
Other red oaks	5.1	1.9	.6	7.6	2.2	1.3	8.6
Sycamore	.4	.2	-	.6	.1	.1	.6
Black walnut	.8	.1	-	.9	.5	.2	1.5
Yellow-poplar	3.4	1.4	-	4.8	1.2	1.0	5.6
Other hardwoods	.9	.4	-	1.3	.3	.2	1.4
Total hardwoods	48.2	13.2	0.7	62.1	20.2	9.2	77.6
All species	48.3	13.2	0.7	62.2	20.2	9.3	77.8

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 12.--Sawlog production and receipts in the Western geographic unit, by species, and destination and origin of shipment, Ohio, 1983

(In millions of board feet)[a]

Species	Cut and retained in unit	Out-shipments		Total production	In-shipments		Total receipts
		To other units	To other states		From other units	From other states	
Pine	*	0.2	-	0.2	-	-	*
Other softwoods	*	-	-	*	-	-	*
Total softwoods	*	0.2	-	0.2	-	-	*
Ash	4.1	0.8	0.3	5.2	0.2	0.6	4.9
Aspen	1.0	.1	-	1.1	*	*	1.0
Basswood	1.0	.2	-	1.2	*	.1	1.1
Beech	.8	.5	.1	1.4	.1	*	.9
Black cherry	.4	.3	-	.7	.1	*	.5
Elm	.2	.2	-	.4	*	*	.2
Hickory	1.6	.3	.2	2.1	.1	*	1.7
Black locust	*	-	-	*	-	-	*
Hard maple	2.0	.8	.1	2.9	.1	.4	2.5
Soft maple	1.7	.6	*	2.3	*	.1	1.8
White oak	4.4	1.5	.4	6.3	.4	13.4	18.2
Other white oaks	2.1	.5	.1	2.7	.1	*	2.2
Red oak	5.7	2.2	.4	8.3	.5	.4	6.6
Other red oaks	3.5	1.1	.2	4.8	.5	.1	4.1
Sycamore	1.0	.2	-	1.2	.1	.1	1.2
Black walnut	.6	.3	.3	1.2	.6	.5	1.7
Yellow-poplar	.8	1.9	-	2.7	.1	.1	1.0
Other hardwoods	.3	.2	-	.5	*	-	.3
Total hardwoods	31.2	11.7	2.1	45.0	2.9	15.8	49.9
All species	31.2	11.9	2.1	45.2	2.9	15.8	49.9

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 13.—Sawlog production and receipts, by species and destination and origin of shipment, Ohio. 1983

(In millions of board feet)[a]

Species	Cut and retained in state	Exported to:			Total production	Imported from:				Total receipts
		Indiana	Kentucky	West Virginia		Indiana	Kentucky	Pennsylvania	West Virginia	
Pine	1.9	–	–	–	1.9	–	–	0.1	–	2.0
Other softwoods	.2	–	–	–	.2	–	–	–	–	.2
Total softwoods	2.1	–	–	–	2.1	–	–	0.1	–	2.2
Ash	21.7	0.3	–	–	22.0	0.2	0.6	0.6	1.3	24.4
Aspen	3.2	–	–	–	3.2	–	–	.1	–	3.3
Basswood	4.2	*	–		4.2	–	.1	.2	.4	4.9
Beech	10.5	.2	–	*	10.7	–	.1	.4	.3	11.3
Black cherry	11.3	–	–	–	11.3	–	.1	.9	1.0	13.3
Elm	4.0	–	–	–	4.0	–	.1	.2	.3	4.6
Hickory	11.7	.1	–	0.1	11.9	.1	.1	.2	.7	12.8
Black locust	.3	–	–	–	.3	–	–	–	–	.3
Hard maple	19.6	.1	–	.1	19.8	.1	.2	1.1	1.1	22.1
Soft maple	15.4	.1	0.1	–	15.6	.1	.1	.7	.7	17.0
White oak	47.9	.5	–	.1	48.5	13.1	4.6	1.2	3.0	69.8
Other white oaks	16.6	.1	–	.1	16.8	–	.9	.5	2.0	20.0
Red oak	51.9	.5	–	.1	52.5	.4	1.9	2.6	4.0	60.8
Other red oaks	46.0	.2	–	.8	47.0	–	3.0	1.8	4.7	55.5
Sycamore	5.2	–	–	–	5.2	.1	.1	.1	.4	5.9
Black walnut	5.8	.4	–	–	6.2	.3	.2	.2	.4	6.9
Yellow-poplar	31.1	–	–	.2	31.3	–	.4	1.2	2.4	35.1
Other hardwoods	5.7	*	–	–	5.7	–	.1	.2	.3	6.3
Total hardwoods	312.1	2.5	.1	1.5	316.2	14.4	12.6	12.2	23.0	374.3
All species	314.2	2.5	.1	1.5	318.3	14.4	12.6	12.3	23.0	376.5

[a]International 1/4-inch rule.
*Less than 50 mbf.

Table 14.--Pulpwood production, by source, Ohio, 1964-83

(In thousands of rough cords)

Year	Roundwood	Manufacturing residues	All sources
1964	232.9	99.4	332.3
1965	272.5	40.6	313.1
1966	336.7	38.8	375.5
1967	281.1	54.9	336.0
1968	232.6	33.5	266.1
5-year total	1,355.8	267.2	1,623.0
1969	230.9	68.5	299.4
1970	251.8	92.0	343.8
1971	276.0	84.1	360.1
1972	233.8	94.1	327.9
1973	222.8	146.5	369.3
5-year total	1,215.3	485.2	1,700.5
1974	261.2	115.6	376.8
1975	185.7	93.4	279.1
1976	270.3	112.7	383.0
1977	286.7	175.6	462.3
1978	251.8	119.8	371.6
5-year total	1,255.7	617.1	1,872.8
1979	296.9	149.5	446.4
1980	299.6	137.1	436.7
1981	293.8	109.1	402.9
1982	317.4	107.5	424.9
1983	350.9	110.9	461.8
5-year total	1,558.6	614.1	2,172.7

Table 15.--Pulpwood harvest, by softwoods and hardwoods, and geographic unit, Ohio, 1969-83

(In thousands of rough cords)

Species group and geographic unit	1969	1970	1971	1972	1973	1974	1975	1976
Softwoods								
South-Central	8.9	8.9	6.6	4.8	4.2	1.9	1.7	1.5
Southeastern	2.4	4.3	3.1	.9	.4	.9	.7	2.3
East-Central	*	*	-	*	.2	-	-	-
Northeastern	.6	.2	-	.7	-	1.3	1.9	2.5
Western	.3	-	-	-	-	-	-	-
Total softwoods	12.2	13.4	9.7	6.4	4.8	4.1	4.3	6.3
Hardwoods								
South-Central	136.1	128.4	115.7	115.1	109.6	113.5	71.5	122.3
Southeastern	27.9	55.2	59.2	56.3	43.6	50.0	44.8	65.1
East-Central	33.3	26.7	56.1	26.3	39.4	69.9	51.2	60.1
Northeastern	6.6	8.0	10.7	9.5	5.0	8.0	1.9	2.4
Western	14.8	20.1	24.6	20.2	20.4	15.7	12.0	14.1
Total hardwoods	218.7	238.4	266.3	227.4	218.0	257.1	181.4	264.0
All species	230.9	251.8	276.0	233.8	222.8	261.2	185.7	270.3

Species group and geographic unit	1977	1978	1979	1980	1981	1982	1983	All years
Softwoods								
South-Central	1.2	1.0	0.5	0.1	-	-	-	41.3
Southeastern	1.4	.6	-	.3	-	1.2	1.1	19.6
East-Central	-	-	-	-	-	-	-	.2
Northeastern	2.4	2.8	1.7	-	-	-	-	14.1
Western	-	-	-	-	-	-	-	.3
Total softwoods	5.0	4.4	2.2	0.4	-	1.2	1.1	75.5
Hardwoods								
South-Central	119.5	102.5	106.9	112.4	122.2	134.6	183.3	1,793.6
Southeastern	82.7	78.8	116.0	95.6	90.0	89.4	90.8	1,045.4
East-Central	56.4	48.5	59.9	63.8	60.4	70.8	64.9	787.7
Northeastern	2.6	3.1	6.8	8.4	9.0	12.9	6.0	100.9
Western	20.5	14.5	5.1	19.0	12.2	8.5	4.8	226.5
Total hardwoods	281.7	247.4	294.7	299.2	293.8	316.2	349.8	3,954.1
All species	286.7	251.8	296.9	299.6	293.8	317.4	350.9	4,029.6

*Less than 50 cords.

Table 16.—Veneer log production in Ohio, by species and consuming state, 1983

(In thousands of board feet)[a]

Species	Cut and retained in state	Exported to:				Total production
		Indiana	Kentucky	West Virginia	Canada	
Ash	180	75	-	64	5	324
Aspen	97	-	-	-	-	97
Basswood	37	-	-	-	-	37
Beech	236	-	-	-	-	236
Black cherry	116	18	-	-	-	134
Elm	64	-	-	-	-	64
Hickory	51	57	-	-	-	108
Hard maple	369	39	-	-	-	408
Soft maple	110	-	-	-	-	110
White oak	1,644	2,176	52	448	199	4,519
Other white oaks	1	-	-	-	-	1
Red oak	526	694	-	-	60	1,280
Other red oaks	1	102	-	-	-	103
Sycamore	155	-	-	-	-	155
Black walnut	468	784	26	-	18	1,296
Yellow-poplar	313	-	-	-	-	313
Other species	189	-	-	-	-	189
All species	4,557	3,945	78	512	282	9,374

[a]International 1/4-inch rule.

Table 17.--Veneer log receipts in Ohio, by species and consuming state, 1983

(In thousands of board feet)[a]

Species	Cut and retained in state	Imported from:								Total receipts
		Indiana	Kentucky	Louisiana	Michigan	Mississippi	Pennsyl-vania	West Virginia	Other states[b]	
Ash	180	58	-	-	40	-	-	-	-	278
Hard maple	369	40	-	-	382	-	128	-	13	932
Soft maple	110	-	-	-	-	-	-	-	-	110
White oak	1,644	723	94	-	589	-	249	94	79	3,472
Sycamore	155	49	-	-	1	-	-	-	-	205
Black walnut	468	186	13	-	66	-	31	20	52	836
Yellow-poplar	313	-	-	-	-	-	-	-	-	313
Beech	236	22	-	-	104	-	-	-	-	362
Black cherry	116	27	-	-	56	-	97	-	9	305
Northern red oak	526	273	52	-	153	-	590	13	62	1,669
Other species[c]	440	141	41	158	201	150	-	-	31	1,162
All species	4,557	1,519	200	158	1,592	150	1,095	127	246	9,644

[a] International 1/4-inch rule.
[b] Includes Illinois, Iowa, Louisiana, Missouri, New York, and Tennessee.
[c] Includes pine, aspen, basswood, elm, hickory, pecan, other oaks and miscellaneous hardwoods such as hackberry.

Table 18.--Veneer log production and receipts in Ohio, for selected years, 1956-83

(In thousands of board feet)[a]

Year	Production	Receipts
1956	8,731	5,658
1958	8,035	6,086
1960	11,135	6,739
1963	8,449	5,000
1966	6,712	5,648
1968	7,886	4,781
1972	7,200	6,914
1973	5,866	5,874
1976	7,575	3,685
1978	7,716	4,696
1980	7,748	6,625
1983	9,374	9,644

[a]International 1/4-inch rule.

Table 19.--White oak cooperage log and bolt production and receipts and number of operating plants in Ohio, for selected years 1958-83

Year	Number of plants	Production	Receipts
1958	4	8,579	8,600
1960	11	13,598	14,735
1962	10	12,427	12,654
1964	12	16,000	17,303
1966	7	11,000	12,838
1973	7	6,372	8,210
1978	4	7,037	8,780
1983	4	3,093	4,480

Table 20.--Production and disposition of manufacturing residues, by type of use and type of residue, Ohio, 1983

(In thousands of cubic feet)

Disposition	Type of residue			All types
	Bark	Coarse[a]	Fine[b]	
		LUMBER[c]		
Fiber[d]	140	7,834	651	8,625
Industrial fuel	1,231	1,707	3,801	6,739
Domestic fuel	1,400	4,520	96	6,016
Agriculture[e]	3,776	150	5,420	9,346
Other[f]	249	1,095	83	1,427
Total, used	6,796	15,306	10,051	32,153
Unused	733	586	1,162	2,481
		VENEER		
Fiber	-	204	47	251
Industrial fuel	128	331	182	641
Domestic fuel	12	117	35	164
Agriculture	60	-	17	77
Other	-	20	-	20
Total, used	200	672	281	1,153
Unused	5	-	-	5
		OTHER INDUSTRIES[g]		
Fiber	5	545	-	550
Industrial fuel	104	126	143	373
Domestic fuel	22	178	2	202
Agriculture	93	1	180	274
Other	-	-	-	-
Total, used	224	850	325	1,399
Unused	30	1	7	38
		ALL INDUSTRIES		
Fiber	145	8,583	698	9,426
Industrial fuel	1,463	2,164	4,126	7,753
Domestic fuel	1,434	4,815	133	6,382
Agriculture	3,929	151	5,617	9,697
Other	249	1,115	83	1,447
Total, used	7,220	16,828	10,657	34,705
Unused	768	587	1,169	2,524

[a] Includes slabs, edgings, trimmings, veneer cores, and other material suitable for chipping.
[b] Includes sawdust, shavings, and other material considered unsuitable for chipping.
[c] Includes lumber products sawn from sawlogs and boltwood.
[d] Includes woodpulp and composite products.
[e] Includes livestock bedding and farm and horticultural mulch.
[f] Includes miscellaneous uses such as small dimension and speciality items.
[g] Includes handles, guardrails, and mine timbers: excludes the woodpulp industry.

*U.S. GOVERNMENT PRINTING OFFICE:1986-748-076:40009

Widmann, Richard H.; Long, Michael. Ohio timber products output--1983. NE-RB-95. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1986. 29 p.

This report contains information compiled from a canvass of all sawmills and all other primary wood-product manufacturers that were operating in Ohio in 1983. The total industrial harvest in Ohio was over 82 million cubic feet in 1983. This was up 17 percent since 1978. Sawlogs accounted for 57 percent of the total and pulpwood accounted for 36 percent. Data are presented by product at two levels: state and geographic unit.

Keywords: Timber output, wood residue use, Ohio manufacturers, production statistics, sawlogs

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NE-RB-96

Forest Wildlife Habitat Statistics for Maine 1982

Robert T. Brooks
Thomas S. Frieswyk
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Abstract

A statistical report on the first forest wildlife habitat survey of Maine (1982). Eighty-five tables show estimates of forest area and several attributes of forest land wildlife habitat. Data are presented at two levels: state and geographic sampling unit.

Foreword

The inventory of Maine was directed by Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis unit. Charles T. Scott, Douglas S. Powell, and Robert T. Brooks were responsible for the design of the inventory and sample selection. John R. Peters supervised the aerial-photo interpretation and data collection by the field crews. He was assisted by David J. Alerich, Thomas B. Hartman, Joseph G. Reddan, Karen J. Sykes, Edward H. Uebler, and Richard H. Widmann. Numerous temporary employees participated in the collection of field data.

The Maine Forest Service, Department of Conservation, provided supplemental funding to intensify the reinventory and assisted significantly with the planning, data collection, and analysis of the inventory. Kenneth Hendren and James Rea provided continuing assistance on behalf of the Maine Forest Service in all of these activities. John Ferwerda and Robert Joslin of the U.S. Department of Agriculture, Soil Conservation Service, provided technical guidance on several aspects of the data collection and assigned a soil series designation to each field plot.

David R. Dickson, Thomas S. Frieswyk, and Nancy M. Veronesi applied FINSYS (Forest INventory SYStem), a generalized data processing system, to the specific data needs of the Maine inventory, and produced summary tables for the state and geographic sampling units. Thomas W. Birch and Richard H. Widmann were instrumental in assuring that the area estimates were consistent with those from the two previous inventories. Anne M. Malley assisted in various data processing capacities and prepared and balanced the statistical tables in this report.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

Cover photo: Courtesy of Maine Department of Inland Fisheries and Wildlife.

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Introduction

The USDA Forest Service inventories of the forest resources of the Nation are authorized by the Renewable Resources Planning Act (RPA) of 1974 and the Renewable Resources Research Act of 1978. These inventories are conducted periodically in each state. Two previous inventories were conducted in Maine and the results were reported by Ferguson and Longwood (1960) and Ferguson and Kingsley (1972). This report presents the forest habitat resource data from the third inventory, which was conducted in 1980-82. This inventory involved a cooperative effort of the Maine Forest Service, Department of Conservation, the U.S. Soil Conservation Service, and the Northeastern Forest Experiment Station. The Forest Inventory and Analysis project at the Northeastern Forest Experiment Station conducted the inventory on all of the forest land, developed the summaries of resource data, and prepared this report.

The 1980-82 habitat inventory conducted by the Forest Inventory and Analysis project followed a sampling procedure that utilized aerial photography and new ground sample locations. In Maine this required the classification of 62,801 points on aerial photographs into land-use and cubic-foot volume classes, and the establishment of 2,475 new ground measurement locations as a subsample of the photo points. The data collected were summarized according to the Sampling with Partial Replacement (SPR) design by the FINSYS computer system developed by the Northeastern Forest Experiment Station. A field manual describing the measurement procedures in detail is available upon request.

The statistics shown in this report summarize information collected. Other information or additional summaries may be developed. For additional publications or more resource data, contact the Forest Inventory, Analysis, and Economics Project, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037) or Director, Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, ME 04333 (phone 207-289-3286)

This report is the first in a continuing series of state-by-state wildlife habitat resource bulletins. The format used was chosen to expeditiously report on the Forest Inventory and Analysis habitat survey. It is our intent to write additional publication(s) that will include detailed analyses and interpretation of the habitat survey.

Forest Inventory reports are appropriate for regional (that is, large county or multi-county and larger areas) applications. The information in the publications is useful to resource professionals concerned with planning and policy formulation for extensive areas of forest land. Use the information for site-specific applications only as background standards for comparisons to the site conditions.

Example Application

The habitat report, used in conjunction with the timber (Powell and Dickson 1984) and ownership (Birch 1986) reports, provides a detailed description

of the forest land of Maine. From these reports, a user can select tables that collectively describe a specific habitat resource.

Exhibit 1 describes the condition of regional white-tailed deer (Odocoileus virginianus) habitat by Forest Inventory, Analysis and geographic survey units (Fig. 1). The information selected serves to illustrate the process of habitat evaluation using forest inventory information. The process can be duplicated for other wildlife species by using data that represent components of their habitat.

In this exhibit, the percentage of total land area in forest/nonforest and edge indices is a measure of forest landscape diversity. Nonforest lands, in particular agricultural lands, can be an important component of deer habitat. As this survey is of forested lands, it would be inappropriate to characterize nonforested land resources. Users of this report are advised to secure supplemental, comparable information on nonforested lands for a more complete habitat evaluation. Generally, the greater the diversity of land use, the better the habitat conditions for deer. The percentage of timberland in

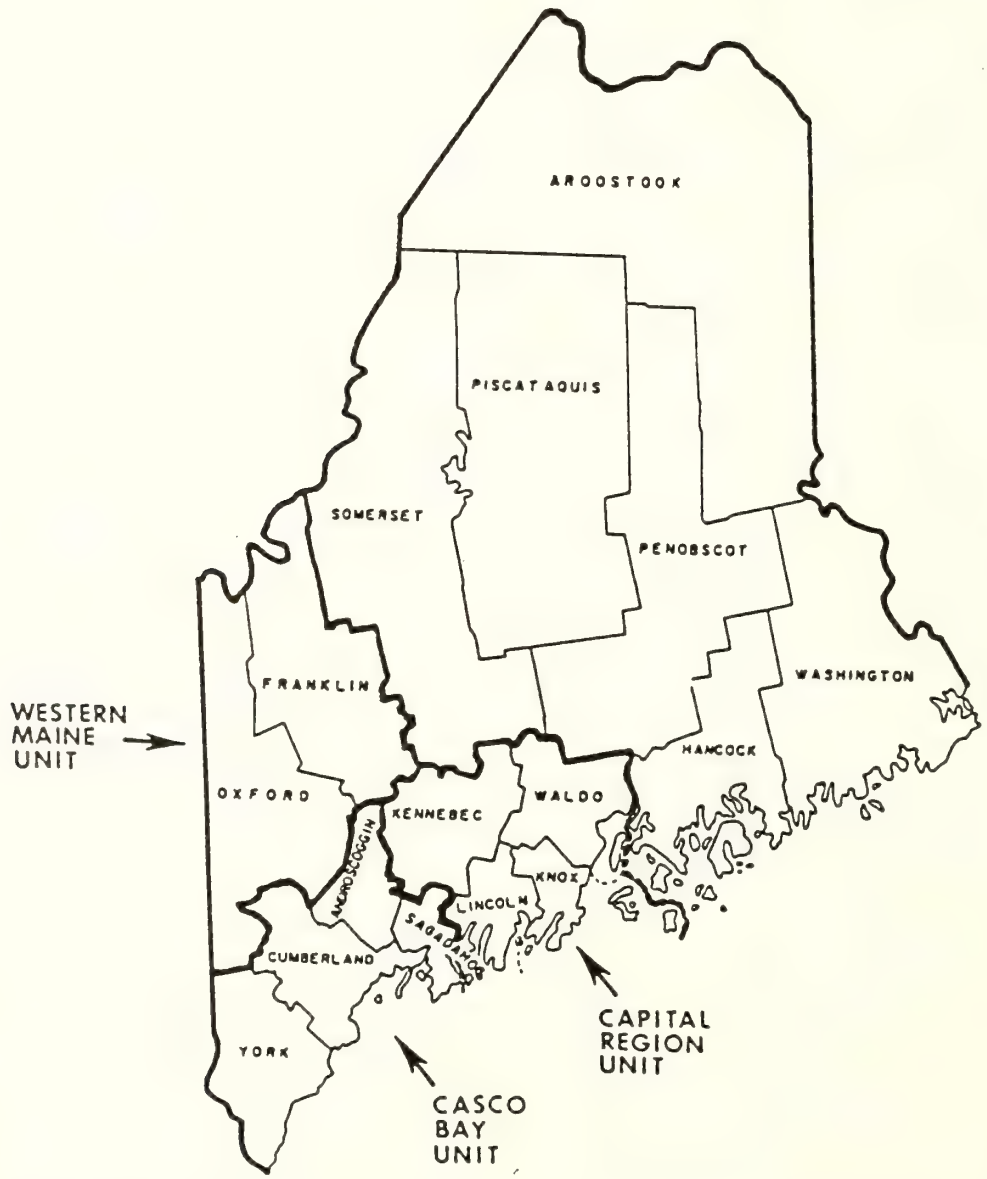

Figure 1.--Map of Maine showing county and/or geographic sampling unit boundaries.

Exhibit 1

Selected habitat components that collectively describe the condition of white-tailed deer habitat, by geographic unit, Maine, 1982

Habitat component	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County	Piscataquis County	Somerset County	Washington County	Western Maine	All units
Percent total area (Table 1)										
Forest land	88.6	76.1	75.9	85.2	88.5	96.6	93.3	91.5	93.1	88.8
Nonforest land	11.4	23.9	24.1	14.8	11.5	3.4	6.7	8.5	6.9	11.2
Edge indices (Table 2)										
Total	30.3	41.9	45.3	27.2	26.7	16.9	32.2	30.0	28.0	32.6
Sum Forest and Shrub	18.1	21.9	22.8	15.5	14.0	10.6	18.5	19.3	17.2	18.2
Percent timberland area (Table 4 and Unit Tables)										
Sawtimber, conifer types	36.3	30.7	41.3	33.9	34.3	39.1	31.6	26.9	21.5	33.0
Sapling/seedling	10.4	12.2	12.0	14.5	6.6	12.8	10.2	20.0	8.2	11.2
Stands less than 100 acres (Table 6)	58.7	80.2	86.3	61.5	47.9	37.7	30.2	78.9	38.2	53.5
Mast potential - trees per acre timberland (Table 7 and Unit Tables)										
Beech	8.5	7.2	5.7	6.4	15.6	10.3	9.3	5.8	10.4	9.3
Oak	t[a]	12.2	23.7	1.0	0.7	0.1	0.4	0.9	4.1	3.4
Browse potential - thousand sapling, seedling, and shrub stems per acre timberland (Table 13 and Unit Tables)										
Readily browsed	1.9	0.8	1.0	0.7	1.8	2.1	2.1	1.0	2.7	1.8
Commonly browsed	6.9	5.0	4.5	8.3	7.1	7.7	6.4	7.1	5.1	6.5
Infrequently browsed	0.8	1.2	1.6	2.5	1.6	1.1	1.1	4.1	0.6	1.4
Questionable species	0.5	0.2	0.2	0.1	t	0.2	0.2	t	0.3	0.2
Total	10.7	8.2	8.5	12.8	11.2	11.7	10.2	14.4	9.1	10.7
Browse potential - percent with observed browse use (Table 13 and Unit Tables)										
Readily browsed	23.5	23.4	12.9	16.3	15.8	37.7	22.3	23.2	36.2	26.5
Commonly browsed	15.1	11.3	11.9	24.2	8.6	17.2	12.8	27.8	16.9	15.9
Infrequently browsed	8.5	19.1	12.8	16.8	4.0	7.0	5.9	14.1	19.5	11.2
Questionable species	2.3	7.7	22.6	0.0	0.0	0.8	1.4	10.3	6.2	4.2
Total	16.5	15.2	12.8	23.1	9.5	20.3	13.9	23.1	22.5	17.4

[a] t = Trace amount, less than 0.1.

sawtimber, conifer forest types is a measure of winter range availability. The percentage of timberland in sapling/seedling forest cover is related to the availability of foraging habitat. The percentage of timberland in forest stands of 100 acres or less is a measure of the diversity of forest land cover. This habitat component, as with all diversity measures, is a double-edged sword. A small level of diversity implies extensive forest cover offering little variety of habitat conditions, whereas a high level of diversity indicates excessive forest fragmentation with a deterioration in cover value and impediments to travel to parts of an animal's home range. Mast tree and sapling, seedling, and shrub densities are measures of potential forage resources.

From these data, the user can compare geographic unit habitat conditions to overall state habitat conditions.

Aroostook County - essentially equivalent forest landscape diversity, slightly more winter range but less sapling/seedling acreage, more small-acreage forest stands, less beech and essentially no acorn potential, equivalent browse potential with less utilization. Conclusion, slightly poorer habitat conditions than the state average because of the deficient mast potential.

Capital Region - much more diverse forest landscape, slightly less winter range and slightly more sapling/seedling acreage, more small-acreage stands, less beech but much more acorn potential, less browse potential with less use. Conclusion, better conditions than the state but excessive forest fragmentation is a concern.

Casco Bay - much more landscape diversity, more winter range, equivalent sapling/seedling acreage, much more small-acreage stands, less beech but 7 times more acorn potential, less browse potential and less use. Conclusion, better habitat conditions than the state average but excessive forest fragmentation is a concern.

Hancock County - less land use diversity, equivalent winter range and more sapling/seedling acreage, more small-acreage stands, less beech and acorn potential, more browse potential but with more use. Conclusion, slightly poorer conditions than the state average because of lower mast potential and high browse utilization.

Penobscot County - slightly less landscape diversity, generally equivalent winter range, less sapling/seedling acreage, less small-acreage stands, more beech but very little acorn mast potential, essentially equivalent browse potential with less use. Conclusion, poorer habitat conditions than the state average because of less landscape diversity, very little regenerating forest lands, and a reliance on beech mast.

Piscataquis County - very little landscape diversity, more winter range and slightly more sapling/seedling acreage, less small-acreage stands, slightly more beech and essentially no acorn potential, slightly more browse potential but greater utilization. Conclusion, poorer habitat conditions than the state average because of extensive forest cover with little diversity, absence of oak mast, and higher levels of browse utilization.

Somerset County - more forest land but similarly diverse forest landscape, slightly less winter range and sapling/seedling acreage, much less small-acreage forest stands, equivalent beech but very little acorn mast potential, similar browse potential with less use. Conclusion, poorer habitat

conditions than state average, again because of extensive forest cover and reliance solely on beech mast.

Washington County - equivalent landscape diversity, much less winter range, more sapling/seedling acreage, more small-acreage stands, less beech and much less acorn potential, greater browse potential but with greater utilization. Conclusion, generally equivalent habitat conditions as the state because of compensating components but winter range and the high level of browse use is a concern.

Western Maine - less landscape diversity, the least winter range of all units, less sapling/seedling acreage, less small-acreage stands, more mast potential of both types, less browse potential but with greater use. Conclusion, poorer habitat conditions than the state average because of the lack of landscape diversity and winter range, and a concern for the level of browse use.

his evaluation process for the hite-tailed deer habitat could be ompleted for other wildlife species. t should work best for species with road habitat requirements (eurytopic) nd with large home ranges, because hese conditions are comparable to the cale of the forest inventory.

n addition to a synthesis of various abitat information for species-specific abitat evaluation, the survey is very seful as a benchmark report on the tatus of individual habitat components seful to a variety of wildlife. This nformation will gain value after the ubsequent (1990's) resurvey of Maine's orest resources. At that time, trends an be identified that will be useful to he development of regional habitat esource management for the maintenance nd improvement of Maine's wildlife abitat resources.

Highlights

Interesting highlights of the habitat survey are:

* The forest land area of Maine is 17.6 million acres, or 89 percent of the land area. Maine is the most heavily forested state in the country.

* All counties in Maine are at least 70 percent forested.

* Timberland area is 17.1 million acres, and has increased slightly since 1971.

* Thirty forest types were identified. Forty-six percent of the timberland, 7.8 million acres, is occupied by forest types in the spruce/fir group.

* Sawtimber stands dominate the timberland with 8.5 million acres. This is an increase of more than 20 percent since 1971.

* Ninety-six percent of the timberland is privately owned. Forest industry owns 8.0 million acres, 47 percent of the total. This is the highest proportion of industrial ownership in the country.

* There are 94.4 billion live trees of all species more than 1 foot tall in Maine. This averages 5,535 trees per acre of timberland. Trees 5.0 inches and larger in d.b.h. total 3.8 billion or 220 per acre.

* Land uses are most interspersed in southeastern Maine and least interspersed in Piscataquis County.

* More than 20 percent of the timberland area is found in stands 9 acres or less in size in southeastern and western Maine.

* Beech constitute more than 50 percent of all live fruit and nut-producing trees, northern red oak is the second most common mast-producing tree.

* Balsam fir is the most commonly surveyed standing dead tree and also the most commonly surveyed standing dead tree with an observed cavity; standing dead red pine most commonly have an observed cavity (51.9 percent), standing dead red oak least commonly have an observed cavity (4.0 percent).

* Beech is the most commonly surveyed live tree with an observed cavity (8.9 percent), black spruce is the least commonly surveyed live tree with an observed cavity (0.1 percent).

* Brambles (Rubus sp.) are the most common understory woody-stemmed species, followed by sapling/seedling sized balsam fir and red and sugar maple.

* An estimated 1 percent of all understory woody stems are heavily browsed, while 82.6 percent show no browse use.

Reliability of the Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout the state. The data are estimates and the effectiveness of the estimating procedure is judged by two important measures: accuracy and precision.

Accuracy describes the closeness of a sample estimate to the true value (how much is really there). Precision refers to the variation among repeated sample estimates. We are chiefly interested in the accuracy of the survey, but in most instances we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Great care was taken in setting up the sample, field personnel were carefully trained, and both office and field work were checked. Drafts of the resource report were submitted to outside experts familiar with the resources in Maine. If questions arose, the data were reviewed and reanalyzed to resolve differences. The data also were compared with those provided by other agencies.

Because of the care exercised in the survey process, our estimates of precision afford a reasonable measure of the survey's adequacy. The precision of each estimate is described by its sampling error. Some sampling errors are given in this report; others are available on request.

An example of the use of sampling errors is the estimate of 181.8 million trees with observed cavities (Table 10). It has an associated sampling error of 3 percent, or 5.5 million trees. Assuming the estimates of this statistic are normally distributed, if there are no errors in procedure and we repeated the survey in the same way, the odds are 2 to 1 (66 percent probability) that the resulting estimate of trees with observed cavities would be between 176.4 and 187.3 million trees, or 181.8 $\pm$ 5.5 million trees. Similarly there is a 95 percent probability (19 to 1) that the estimate would be 170.9 to 192.7 million trees, or 181.8 $\pm$ 10.9 million trees.

Estimates are most precise or reliable at the state level, followed by unit estimates. In our example, where the state level sampling error is 3 percent, the unit level sampling errors range from 6 (Aroostook County) to 11 percent (Hancock and Washington Counties). In general, as the size of an estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases.

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Table 1.--Land area by land use class and geographic unit, Maine, 1982

(In thousands of acres)

Land use class	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County	Piscataquis County	Somerset County	Washington County	Western Maine	All units
Forest land:										
Timberland	3,768.4	1,152.4	1,258.8	776.3	1,872.7	2,238.1	2,334.5	1,454.2	2,204.8	17,060.2
Unproductive	32.5	21.2	6.5	32.1	67.3	32.6	11.0	47.7	22.2	273.1
Productive reserved	10.3	10.0	5.9	29.7	1.4	192.7	.2	12.6	9.2	272.0
Urban	-	2.1	-	-	-	-	-	-	-	2.1
Total forest	3,811.2	1,185.7	1,271.2	838.1	1,941.4	2,463.4	2,345.7	1,514.5	2,236.2	17,607.4
Nonforest land:										
Cropland	233.3	90.7	81.4	11.5	55.1	11.1	40.5	30.8	36.8	591.2
Improved pasture	22.8	33.4	29.3	1.9	16.1	3.6	15.2	3.6	12.1	138.0
Idle farmland	83.1	32.0	51.1	-	11.7	14.7	31.0	-	22.0	245.6
Other farmland	-	19.2	4.4	-	-	-	-	-	-	23.6
Bog/marsh/swamp	33.2	9.4	32.1	48.1	45.2	14.7	-	53.9	-	236.6
Right-of-way	32.8	57.1	53.2	48.2	35.0	14.6	31.0	-	33.1	305.0
Mining/wasteland	11.3	2.0	16.4	-	-	-	10.2	-	9.1	49.0
Recreation site	11.3	1.6	3.3	-	-	-	-	-	10.8	27.0
Industrial/commercial	-	19.6	7.6	12.0	-	-	-	-	-	39.2
Tract/multi-family	-	-	10.8	-	-	-	-	25.8	-	36.6
Single/custom house	11.2	89.9	65.1	24.0	44.2	-	20.6	26.3	-	281.3
Other nonforest	11.2	4.4	32.9	-	11.5	14.6	11.1	-	15.2	100.9
Non-census water	40.2	13.0	16.5	-	34.8	14.5	10.2	-	26.2	155.4
Total nonforest	490.4	372.3	404.1	145.7	253.6	87.8	169.8	140.4	165.3	2,229.4
Total land area	4,301.6	1,558.0	1,675.3	983.8	2,195.0	2,551.2	2,515.5	1,654.9	2,401.5	19,836.8

Table 2.--Index to land use edge by type of land use and geographic unit, Maine, 1975, 1980, or 1981[a]

(Edge hits[b] per thousand acres)

Land use edge type	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County	Piscataquis County	Somerset County	Washington County	Western Maine	All units
Forest -										
forest	10.7	6.6	5.4	7.5	6.1	4.5	12.0	7.7	10.9	8.0
shrub	2.1	3.6	4.3	3.4	4.1	3.4	2.7	7.5	2.7	3.6
agricultural/herbaceous	4.1	7.7	6.4	2.7	2.5	1.8	3.0	1.1	2.5	4.1
cultural	0.5	2.3	5.2	0.9	1.1	0.2	0.4	0.9	0.9	1.6
Shrub -										
agricultural/herbaceous	0.5	1.3	1.1	0.5	0.2	0.7	0.4	1.6	0.2	0.7
cultural	0.2	0.4	0.4	0.5	t	t	t	0.5	t	0.2
Agicultural/herbaceous -										
cultural	0.4	0.9	1.3	0.2	0.4	0.2	0.2	0.4	0.4	0.5
Hedgerow	1.1	1.4	1.4	0.2	0.7	0.4	1.1	0.2	0.7	0.9
Transportation										
right-of-way	6.8	11.6	13.0	6.4	5.9	4.1	4.6	7.0	6.3	8.0
Utility										
right-of-way	0.5	1.6	2.0	0.4	1.1	0.2	0.7	0.2	0.5	0.9
Aquatic	3.4	4.5	4.8	4.5	4.6	1.4	7.1	2.9	2.9	4.1
All types	30.3	41.9	45.3	27.2	26.7	16.9	32.2	30.0	28.0	32.6
Number of photo plots	512	378	400	100	230	242	242	150	230	2,484
Number of edge hits	8,704	8,813	10,106	1,519	3,382	2,251	4,366	2,518	3,618	45,277

[a]Date varies because several sources of aerial photography were used.
[b]Edge condition on an aerial photograph sampled by a line transect (Brooks and Scott 1983).
t=Trace amount, less than 0.05.

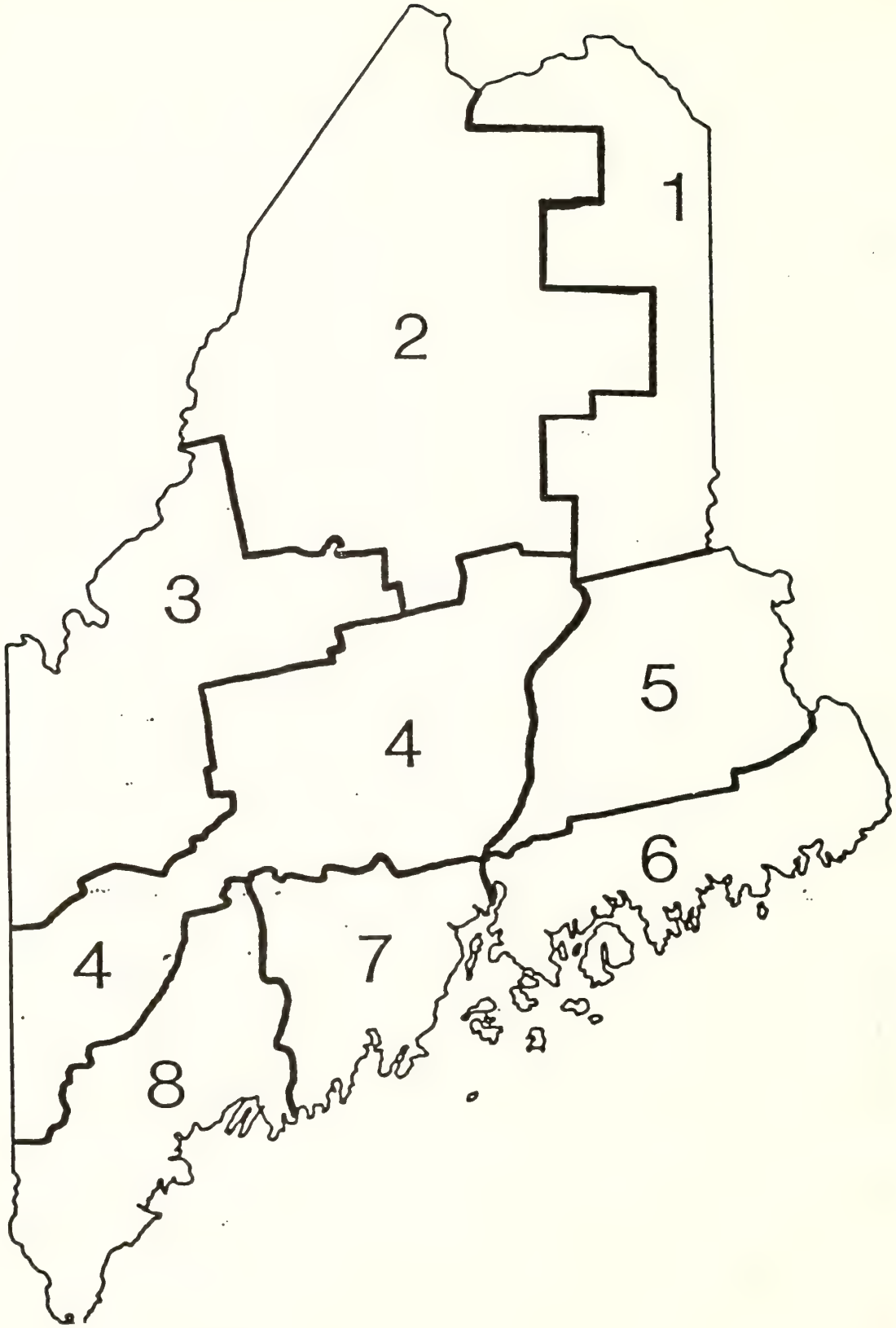
Table 3.--Area of timberland by ownership class and geographic unit, Maine, 1982 (Powell and Dickson 1984)

(In thousands of acres)

Ownership class	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County	Piscataquis County	Somerset County	Washington County	Western Maine	State total
National Forest	.0	.0	3.2	.0	3.7	.0	.0	.0	38.7	45.6
Other federal	5.6	.2	1.7	.5	.0	.0	.0	11.2	.0	19.2
State	82.7	9.6	7.6	22.0	22.9	86.0	55.4	22.5	45.5	354.2
Indian	.0	.0	.0	16.5	80.3	2.7	.0	11.6	46.0	157.1
County and municipal	76.0	7.2	8.1	2.5	6.9	2.9	2.2	.5	7.7	114.0
Total public	164.3	17.0	20.6	41.5	113.8	91.6	57.6	45.8	137.9	690.1
Forest industry	1,955.6	38.6	104.4	337.0	761.1	1,433.1	1,647.9	858.1	881.1	8,016.9
Farmer	273.4	202.9	268.1	64.6	132.8	20.0	105.5	94.2	145.0	1,306.5
Miscellaneous private:										
Individual	488.8	777.8	753.6	242.1	381.9	130.3	244.2	311.9	673.3	4,003.9
Corporate	58.9	53.3	30.3	17.7	69.6	37.9	159.2	28.4	117.1	572.4
Other	827.4	62.8	81.8	73.4	413.5	525.2	120.1	115.8	250.4	2,470.4
Total private	3,604.1	1,135.4	1,238.2	734.8	1,758.9	2,146.5	2,276.9	1,408.4	2,066.9	16,370.1
All owners	3,768.4	1,152.4	1,258.8	776.3	1,872.7	2,238.1	2,334.5	1,454.2	2,204.8	17,060.2

Table 4.--Area of timberland by forest type, forest-type group, and stand-size class, Maine, 1982 (Powell and Dickson 1984)
(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	24.1	9.6	9.2	.0	42.9
White pine	751.8	218.2	61.1	.0	1,031.1
White pine/hemlock	314.0	183.3	8.3	.0	505.6
Hemlock	447.0	145.7	22.4	.0	615.1
White/red pine group	1,536.9	556.8	101.0	.0	2,194.7
Balsam fir	372.3	535.3	185.3	8.4	1,101.3
Red spruce	632.6	478.0	45.7	9.7	1,166.0
Red spruce/balsam fir	1,907.0	1,086.0	328.1	.0	3,321.1
White spruce	87.0	62.9	.0	5.0	154.9
Black spruce	8.5	205.0	64.7	.0	278.2
Northern white-cedar	1,030.1	457.8	145.3	.0	1,633.2
Tamarack	45.7	47.0	23.1	.0	115.8
Spruce/fir group	4,083.2	2,872.0	792.2	23.1	7,770.5
Pitch pine	4.1	.0	4.2	.0	8.3
Loblolly/shortleaf group	4.1	.0	4.2	.0	8.3
White pine/no. red oak/wh. ash	15.5	20.7	.0	.0	36.2
Oak/pine group	15.5	20.7	.0	.0	36.2
Post/black/bear oak	.0	4.2	.0	.0	4.2
White oak	4.2	.0	.0	.0	4.2
Northern red oak	66.1	122.8	20.1	.0	209.0
Hawthorn/reverting field	3.9	.0	.0	.0	3.9
Red maple/central hardwoods	12.5	12.7	18.9	.0	44.1
Mixed central hardwoods	18.9	12.5	9.7	.0	41.1
Oak/hickory group	105.6	152.2	48.7	.0	306.5
Black ash/Amer. elm/red maple	31.6	130.2	4.5	.0	166.3
Willow	10.4	.0	41.9	.0	52.3
American elm/green ash	4.0	11.6	4.0	.0	19.6
Elm/ash/red maple group	46.0	141.8	50.4	.0	238.2
Sugar maple/beech/y. birch	1,956.5	976.2	201.5	.0	3,134.2
Black cherry	.0	9.6	9.2	.0	18.8
Red maple/northern hardwoods	396.3	642.1	169.8	.0	1,208.2
Pin cherry/reverting field	.0	10.6	106.3	9.0	125.9
Mixed northern hardwoods	204.7	259.7	49.4	.0	513.8
Northern hardwoods group	2,557.5	1,898.2	536.2	9.0	5,000.9
Aspen	143.5	648.2	229.2	.0	1,020.9
Paper birch	20.8	275.1	74.2	.0	370.1
Gray birch	4.2	30.8	78.9	.0	113.9
Aspen/birch group	168.5	954.1	382.3	.0	1,504.9
Total, all groups	8,517.3	6,595.8	1,915.0	32.1	17,060.2



Map of Maine showing Department of Inland Fisheries and Wildlife Management Unit boundaries.

Table 5.--Area of timberland by revised stand-size class[a] and wildlife management unit, and total land area, Maine, 1982

(In thousands of acres)

Revised stand-size class	Wildlife management unit								All units
	1	2	3	4	5	6	7	8	
Large growth	76.1	924.7	294.4	253.9	113.8	72.4	98.0	221.8	2,055.1
Sawtimber	285.4	1,361.1	391.5	646.5	316.4	175.8	204.7	268.7	3,650.1
Large pole	719.1	1,539.7	1,141.3	1,239.4	571.3	518.7	302.4	365.7	6,397.6
Small pole	210.5	496.1	327.6	640.2	374.1	279.3	240.7	234.1	2,802.6
Sapling	65.8	151.1	69.3	55.4	57.0	166.8	47.8	76.6	689.8
Seedling	139.3	438.9	180.1	153.9	173.7	144.1	90.7	91.3	1,412.0
Nonstocked	6.8	8.9	0.0	21.3	10.0	0.0	0.0	6.0	53.0
All classes	1,503.0	4,920.5	2,404.2	3,010.6	1,616.3	1,357.1	984.3	1,264.2	17,060.2
Total land area[b]	2,018.0	5,124.5	2,531.6	3,533.9	1,746.2	1,596.0	1,294.5	1,718.7	19,563.4

[a] See definitions for standards of revised stand-size classes.
[b] Source: Maine Department of Inland Fisheries and Wildlife.

Table 6.--Area of timberland by stand area class and geographic unit, Maine, 1982

(In thousands of acres)

Stand area class	Aroostook County	Capital Region	Casco Bay	Hancock County	Penobscot County	Piscataquis County	Somerset County	Washington County	Western Maine	All units
1 - 9 acres	349.0	250.9	298.8	74.9	160.3	51.3	176.0	344.9	102.5	1,808.6
10 - 19 acres	460.1	242.3	309.2	94.1	142.7	73.5	114.2	201.1	95.0	1,732.2
20 - 49 acres	845.2	243.9	346.9	140.2	335.3	194.5	186.5	348.7	260.0	2,901.2
50 - 99 acres	556.6	186.7	130.9	167.8	257.7	524.6	227.6	253.6	384.7	2,690.2
100 -499 acres	842.6	203.8	153.6	205.7	401.0	818.3	602.5	126.5	638.5	3,992.5
500+ acres	714.9	24.8	19.4	93.6	575.7	575.9	1,027.7	179.4	724.1	3,935.5
All classes	3,768.4	1,152.4	1,258.8	776.3	1,872.7	2,238.1	2,334.5	1,454.2	2,204.8	17,060.2

Table 7.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Eastern redcedar	31	0	0	0	0	0	0	0	0	0	31	100
Serviceberry	166	0	0	0	0	0	0	0	0	0	166	62
Hickory	31	0	0	0	0	0	0	0	0	0	31	100
Beech	67,556	38,569	23,625	13,768	7,858	4,057	1,600	442	397	0	157,872	7
Butternut	0	72	0	55	0	0	0	0	0	0	127	100
Apple	1,673	1,152	134	83	0	41	0	0	16	0	3,099	30
Blackgum	32	0	0	0	17	0	0	0	0	0	49	73
Eastern hophornbeam	7,757	2,890	347	15	0	0	0	0	0	0	11,009	15
Pin cherry	3,697	794	79	0	0	0	0	0	0	0	4,570	21
Black cherry	4,052	1,756	360	193	45	0	16	0	0	0	6,422	19
Chokecherry	268	0	0	0	0	0	0	0	0	0	268	79
White oak	2,902	1,045	259	57	90	75	49	43	10	31	4,561	26
Scarlet oak	0	0	31	0	0	0	0	0	0	0	31	100
Northern red oak	20,362	13,593	6,813	4,251	2,191	1,152	562	331	259	23	49,537	8
Black oak	1,792	1,000	268	152	85	16	0	0	17	0	3,330	27
Mountain ash	816	141	79	38	73	0	0	0	0	0	1,147	40
Total, all species	111,135	61,012	31,995	18,612	10,359	5,341	2,227	816	699	54	242,250	5
Sampling error (percent)	6	6	7	7	8	10	13	18	19	47	5	

Table 8.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	1,481,905	4,201,550	23,804,227	1,343,111	30,830,793
Saplings	372,811	3,307,749	65,711	17,023	3,763,294
Total sawtimber	1,854,716	7,509,299	23,869,938	1,360,134	34,594,087
Poletimber:					
Shrubs	1,503,730	7,858,251	20,690,656	1,587,002	31,639,637
Saplings	451,586	4,343,107	103,528	8,940	4,907,161
Total poletimber	1,955,316	12,201,358	20,794,184	1,595,942	36,546,798
Sapling/seedling:					
Shrubs	354,113	8,508,787	17,471,656	1,287,246	27,621,802
Saplings	56,304	1,186,000	113,544	0	1,355,850
Total sapling/seedling	410,417	9,694,787	17,585,200	1,287,246	28,977,652
Nonstocked:					
Shrubs	0	432,907	1,043,657	31,027	1,507,591
Saplings	0	0	0	0	0
Total nonstocked	0	432,907	1,043,657	31,027	1,507,591
Total, all classes	4,220,449	29,838,351	63,292,979	4,274,349	101,626,128

Table 9.--Number of standing dead trees on timberland by species, condition class, and diameter class, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	88,471	2,806	99	91,376	106,270	5,682	733	112,685	204,061	4
Tamarack	612	190	0	802	1,436	61	55	1,552	2,354	33
White spruce	2,828	120	30	2,978	1,312	103	39	1,454	4,432	17
Black spruce	3,008	37	0	3,045	2,906	129	0	3,035	6,080	21
Red spruce	19,992	1,043	237	21,272	15,271	2,087	748	18,106	39,378	7
Red pine	82	0	0	82	74	0	0	74	156	71
White pine	3,214	424	270	3,908	8,028	1,397	670	10,095	14,003	10
Northern white-cedar	21,227	5,635	1,740	28,602	14,940	2,873	910	18,723	47,325	7
Hemlock	1,830	196	43	2,069	2,149	375	284	2,808	4,877	17
Other softwoods	152	21	0	173	284	15	0	299	472	57
Total softwoods	141,416	10,472	2,419	154,307	152,670	12,722	3,439	168,831	323,138	3
Sugar maple	1,658	146	51	1,855	2,627	969	1,103	4,699	6,554	14
Red maple	5,148	331	107	5,586	11,765	1,526	475	13,766	19,352	9
Yellow birch	1,936	359	255	2,550	6,652	4,813	6,143	17,608	20,158	6
Paper birch	5,246	473	67	5,786	13,840	2,291	950	17,081	22,867	9
Gray birch	2,048	0	0	2,048	6,470	0	0	6,470	8,518	15
Beech	4,098	654	360	5,112	7,880	3,101	2,552	13,533	18,645	12
White ash	546	0	43	589	877	224	169	1,270	1,859	24
Black ash	4,489	290	80	4,859	3,019	560	88	3,667	8,526	20
Aspen	6,739	290	30	7,059	13,116	1,006	224	14,346	21,405	11
White oaks	28	0	0	28	0	15	0	15	43	74
Red oaks	356	60	33	449	540	0	7	547	996	36
Basswood	0	34	0	34	26	0	0	26	60	71
Elm	1,920	289	232	2,441	2,110	366	197	2,673	5,114	22
Other hardwoods	5,225	48	0	5,273	7,634	196	496	8,326	13,599	13
Total hardwoods	39,437	2,974	1,258	43,669	76,556	15,067	12,404	104,027	147,696	4
Total, all species	180,853	13,446	3,677	197,976	229,226	27,789	15,843	272,858	470,834	3
Sampling error (percent)	4	7	11	4	3	4	5	3	3	

Table 10.--Number of trees with observed cavities on timberland by species and condition class, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	6,698	4,720	0	407	11,825	5,204	12,938	18,142	29,967	7
Tamarack	216	216	0	0	432	100	314	414	846	43
White spruce	391	0	0	39	430	185	205	390	820	34
Black spruce	37	29	0	59	125	75	122	197	322	50
Red spruce	2,275	940	0	0	3,215	774	2,303	3,077	6,292	10
Red pine	0	69	0	0	69	81	0	81	150	62
White pine	959	631	11	87	1,688	220	1,718	1,938	3,626	13
Northern white-cedar	4,492	10,077	152	1,779	16,500	5,878	5,222	11,100	27,600	7
Hemlock	773	1,241	79	0	2,093	132	807	939	3,032	15
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	15,841	17,923	242	2,371	36,377	12,649	23,629	36,278	72,655	4
Sugar maple	4,668	5,612	197	48	10,525	535	2,368	2,903	13,428	9
Red maple	6,325	14,206	59	340	20,930	978	5,054	6,032	26,962	7
Yellow birch	2,652	4,911	29	287	7,879	439	9,218	9,657	17,536	7
Paper birch	1,695	2,746	67	89	4,597	455	4,594	5,049	9,646	12
Gray birch	188	622	0	104	914	235	516	751	1,665	31
Beech	3,468	9,818	85	621	13,992	776	6,027	6,803	20,795	11
White ash	359	254	16	0	629	143	337	480	1,109	27
Black ash	149	336	102	128	715	369	692	1,061	1,776	22
Aspen	1,727	3,227	30	0	4,984	841	3,006	3,847	8,831	14
White oaks	0	88	0	0	88	0	16	16	104	51
Red oaks	725	601	37	0	1,363	33	7	40	1,403	22
Basswood	119	79	0	0	198	0	26	26	224	49
Elm	28	15	0	0	43	152	231	383	426	34
Other hardwoods	330	2,029	16	66	2,441	559	2,265	2,824	5,265	16
Total hardwoods	22,433	44,544	638	1,683	69,298	5,515	34,357	39,872	109,170	4
Total, all species	38,274	62,467	880	4,054	105,675	18,164	57,986	76,150	181,825	3
Sampling error (percent)	6	5	21	15	-	8	4	-	3	

Table 11.—Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Canada yew	6.1	5.5	3.7	.0	15.3	47	s[a]
Northern white-cedar	1,737.5	1,468.4	303.5	.0	3,509.4	10	13
Eastern hemlock	831.0	675.4	49.4	.0	1,555.8	10	16
Striped maple	3,478.6	2,388.5	505.6	.0	6,372.7	7	4
Red maple	4,068.7	4,422.3	1,319.8	.0	9,810.8	4	12
Mountain maple	2,294.2	1,366.5	348.9	.0	4,009.6	8	4
Apple	15.6	12.7	20.3	.0	48.6	32	23
Smooth sumac	19.2	2.1	.0	.0	21.3	51	s
Staghorn sumac	17.5	22.8	3.5	.0	43.8	37	s
Basswood	6.3	.9	.0	.0	7.2	68	17
Mountain ash	93.6	72.6	77.3	.0	243.5	24	s
Hobblebush viburnum	3,210.2	1,450.8	107.6	.0	4,768.6	10	s
Total readily browsed	15,778.5	11,888.5	2,739.6	.0	30,406.6	3	
Balsam fir	10,385.5	10,505.8	3,097.6	.0	23,988.9	4	13
Juniper	561.6	401.9	88.8	563.7	1,616.0	40	s
White pine	296.0	288.1	69.0	.0	653.1	9	32
Sugar maple	5,982.7	2,467.8	348.4	.0	8,798.9	8	5
Shadbush	28.5	190.3	54.1	.0	272.9	27	s
Yellow birch	2,753.7	1,402.2	401.2	.0	4,557.1	8	7
Black birch	7.4	11.9	.0	.0	19.3	43	s
Paper birch	1,014.0	1,518.8	996.8	.0	3,529.6	7	14
Red-osier dogwood	129.2	457.2	746.0	.0	1,332.4	29	s
Hawthorn	7.1	14.7	25.9	.0	47.7	40	6
American hazelnut	442.9	330.0	168.5	.0	941.4	15	s
Beaked hazelnut	1,039.1	1,173.7	185.5	.0	2,398.3	12	s
Beech	2,310.1	1,679.5	235.3	.0	4,224.9	7	15
White ash	463.7	903.2	120.9	.0	1,487.8	11	7
Black ash	295.7	267.3	22.5	.0	585.5	15	14
Huckleberries	24.8	82.7	10.3	.0	117.8	40	s
Winterberry	108.6	447.2	76.7	.0	632.5	32	s
Honeysuckle	547.7	532.3	161.5	.0	1,241.5	12	s
Mountain holly	41.0	95.6	.0	.0	136.6	34	s
Balsam poplar	185.5	317.8	86.5	.0	589.8	29	3
Bigtooth aspen	119.6	83.0	107.3	.0	309.9	21	7
Quaking aspen	322.3	1,178.7	741.8	.0	2,242.8	15	11
Pin cherry	340.7	357.0	628.6	.0	1,326.3	14	8
Black cherry	204.9	362.0	217.2	.0	784.1	14	5
Chokecherry	105.5	242.2	291.5	.0	639.2	28	s
White oak	15.2	36.1	70.4	.0	121.7	39	14
Roses	96.7	6.1	129.4	.0	232.2	56	s
Brambles	13,745.5	12,272.3	11,744.4	12.5	37,774.7	7	s

Table 11.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Willows	126.8	146.1	456.1	.0	729.0	21	6
Common elderberry	37.0	60.8	34.8	.0	132.6	25	s
Red-berried elder	39.9	63.4	69.2	.0	172.5	28	s
American elm	5.6	77.7	1.6	.0	84.9	59	17
Blueberries	2,135.5	1,781.3	2,711.8	455.1	7,083.7	17	s
Sweetfern	129.9	361.6	149.1	.0	640.6	23	s
Maple-leaf viburnum	184.0	215.2	50.2	.0	449.4	31	s
Witherod	267.6	490.2	407.0	.0	1,164.8	18	s
Total commonly browsed	44,501.5	40,821.7	24,705.9	1,031.3	111,060.4	3	
Tamarck	8.5	46.3	44.2	.0	99.0	29	42
White spruce	229.8	160.4	52.8	.0	443.0	12	31
Black spruce	97.1	401.0	253.0	.0	751.1	21	25
Red spruce	2,563.0	1,835.8	907.2	.0	5,306.0	7	16
Pitch Pine	.0	.0	.5	.0	.5	100	100
Speckled alder	1,443.6	1,889.3	955.9	.0	4,288.8	11	s
Bog Rosemary	0	22.5	.0	.0	22.5	100	s
Black chokeberry	72.9	13.7	.0	.0	86.6	71	s
Grey birch	166.2	346.5	376.9	.0	889.6	12	27
Lambkill	610.1	2,262.3	2,710.6	24.6	5,607.6	23	s
Labrador tea	15.2	224.3	283.8	.0	523.3	35	s
Eastern hophornbeam	178.1	164.1	42.1	.0	384.3	17	25
Bear Oak	14.5	4.6	154.3	.0	173.4	70	2
Red oak	200.1	379.7	105.8	.0	685.6	17	15
Spiraea	684.0	1,182.5	2,612.1	179.2	4,657.8	17	s
Total infrequently browsed	6,283.1	8,933.0	8,499.2	203.8	23,919.1	7	
Red ash	81.2	78.4	9.8	.0	169.4	26	s
Witch-hazel	147.5	291.9	57.6	.0	497.0	18	s
Rhododendron	16.8	2.0	.0	.0	18.8	81	s
Gooseberries	1,795.5	1,104.5	567.8	.0	3,467.8	15	s
Total questionable	2,041.0	1,476.8	635.2	.0	4,153.0	13	
Unclassified Species	3,496.9	4,746.1	3,975.6	272.5	12,488.1	7	
Total all species	72,098.4	67,866.1	40,555.5	1,507.6	182,027.6	2	
Sampling error (percent)	4	4	8	64	2		

[a]Classed as shrub species.

Table 12.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Canada yew	6.4	5.2	.0	.0	.0	.0	.0	3.7	15.3
Northern white-cedar	103.0	3,019.5	.0	.0	30.5	107.8	166.0	82.6	3,509.4
Eastern hemlock	706.1	414.9	.0	.0	15.6	.0	383.4	35.8	1,555.8
Striped maple	266.9	1,553.0	.0	25.1	45.6	22.4	3,810.5	649.2	6,372.7
Red maple	1,031.5	4,147.3	.0	26.8	231.1	153.8	3,163.6	1,056.7	9,810.8
Mountain maple	52.5	2,146.2	.0	.0	8.8	16.9	1,315.0	470.2	4,009.6
Apple	6.9	1.9	.0	.0	7.7	.0	22.9	9.2	48.6
Smooth sumac	.0	8.4	.0	.0	.0	.0	12.9	.0	21.3
Staghorn sumac	5.4	20.0	.0	.0	6.3	.0	10.2	1.9	43.8
Basswood	7.2	.0	.0	.0	.0	.0	.0	.0	7.2
Mountain ash	.0	167.6	.0	.0	.0	.0	56.9	19.0	243.5
Hobblebush viburnum	84.0	994.5	.0	.0	4.3	4.2	3,411.0	270.6	4,768.6
Total readily browsed	2,269.9	12,478.5	.0	51.9	349.9	305.1	12,352.4	2,598.9	30,406.6
Balsam fir	2,186.5	15,536.0	.0	.0	113.0	140.6	4,497.6	1,515.2	23,988.9
Juniper	673.2	61.6	.0	1.8	96.2	.0	579.7	203.5	1,616.0
White pine	320.9	121.7	.0	5.2	54.0	1.3	109.4	40.6	653.1
Sugar maple	523.9	1,440.9	.0	.0	57.1	22.7	6,563.4	190.9	8,798.9
Shadbush	24.1	47.2	.0	.0	20.1	3.2	69.1	109.2	272.9
Yellow birch	381.8	1,751.7	.0	9.4	4.0	13.9	2,298.8	97.5	4,557.1
Black birch	8.8	.0	.0	.0	.9	.0	7.2	2.4	19.3
Paper birch	281.6	1,606.1	.0	32.5	84.0	6.3	982.5	536.6	3,529.6
Red-osier dogwood	16.4	320.7	.0	.0	2.8	265.3	413.1	314.1	1,332.4
Hawthorn	17.4	1.7	.0	.0	1.3	1.9	25.4	.0	47.7
American hazelnut	75.6	340.1	.0	.0	10.2	32.2	298.5	184.8	941.4
Beaked hazelnut	238.7	735.2	.0	.0	73.5	29.3	899.8	421.8	2,398.3
Beech	295.2	203.5	.0	15.2	80.5	2.9	3,392.7	234.9	4,224.9
White ash	457.0	167.3	.0	.0	27.7	16.8	570.6	248.4	1,487.8
Black ash	5.2	401.6	.0	.0	1.9	66.5	56.2	54.1	585.5
Huckleberries	17.6	36.1	.0	34.0	21.3	.0	8.8	.0	117.8
Winterberry	130.8	143.2	.0	.0	87.1	4.3	200.5	66.6	632.5
Honeysuckle	72.5	794.9	.0	.0	21.0	.0	188.8	164.3	1,241.5
Mountain holly	13.0	85.7	.0	.0	19.3	.0	18.6	.0	136.6
Balsam poplar	.0	278.5	.0	.0	.0	.0	95.9	215.4	589.8
Bigtooth aspen	64.9	75.2	.0	.0	9.7	.0	100.0	60.1	309.9
Quaking aspen	210.9	448.1	.0	.0	7.9	53.2	589.6	933.1	2,242.8
Pin cherry	170.8	352.3	.0	23.1	13.5	12.1	555.6	198.9	1,326.3

Table 12.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Black cherry	163.1	181.9	.0	.0	43.4	65.6	169.9	160.2	784.1
Chokecherry	96.3	76.5	.0	.0	9.8	20.7	342.6	93.3	639.2
White oak	18.8	.0	.0	6.4	29.6	.0	33.0	33.9	121.7
Roses	.0	6.5	.0	.0	.0	3.5	170.9	51.3	232.2
Brambles	2,755.9	18,127.2	.0	10.3	259.4	1,483.2	12,470.9	2,667.8	37,774.7
Willows	80.0	144.0	.0	.0	75.8	113.4	79.9	235.9	729.0
Common elderberry	6.4	44.3	.0	.0	.0	.0	47.8	34.1	132.6
Red-berried elder	.8	60.6	.0	.0	.0	.0	109.0	2.1	172.5
American elm	7.2	6.8	.0	.0	.0	3.8	51.8	15.3	84.9
Blueberries	931.8	3,208.1	66.0	29.7	354.6	83.2	1,117.3	1,293.0	7,083.7
Sweetfern	36.6	265.0	.0	.0	21.3	2.9	108.6	206.2	640.6
Maple-leaf viburnum	9.8	65.6	.0	13.2	6.8	27.6	191.5	134.9	449.4
Wild raisin	103.8	395.3	.0	.5	8.3	26.9	282.5	347.5	1,164.8
Total commonly browsed	10,397.3	47,531.1	66.0	181.3	1,616.0	2,503.3	37,697.5	11,067.9	111,060.4
Tamarack	2.1	80.9	.0	.0	4.2	1.8	2.3	7.7	99.0
White spruce	22.1	309.1	.0	.0	1.8	.0	70.1	39.9	443.0
Black spruce	.0	715.0	.0	.0	.0	15.8	16.7	3.6	751.1
Red spruce	274.7	4,033.2	.0	.0	15.3	13.3	812.9	156.6	5,306.0
Pitch pine	.0	.0	.5	.0	.0	.0	.0	.0	.5
Speckled alder	177.7	2,594.2	.0	.0	.0	425.6	512.5	578.8	4,288.8
Bog Rosemary	.0	22.5	.0	.0	.0	.0	.0	.0	22.5
Black chokeberry	64.6	8.4	.0	.0	1.8	10.9	.9	.0	86.6
Gray birch	182.4	133.7	11.6	3.2	45.1	11.6	132.4	369.6	889.6
Lambkill	433.5	2,439.6	.0	.6	226.7	1.8	1,110.5	1,394.9	5,607.6
Labrador tea	3.5	413.4	.0	.0	7.4	13.6	85.4	.0	523.3
Eastern hophornbeam	78.6	36.0	.0	.0	23.6	6.7	212.9	26.5	384.3
Bear oak	9.0	.0	51.5	.0	.0	.0	.0	112.9	173.4
Red oak	259.7	14.9	.0	11.6	101.4	1.8	262.7	33.5	685.6
Spiraea	731.3	1,249.5	.0	1.3	29.0	92.0	1,044.0	1,510.7	4,657.8
Total infrequently browsed	2,239.2	12,050.4	63.6	16.7	456.3	594.9	4,263.3	4,234.7	23,919.1

Table 12.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Red ash	87.4	17.5	.0	.0	3.0	29.0	23.2	9.3	169.4
Witch-hazel	184.2	60.5	.0	4.6	84.2	.0	145.6	17.9	497.0
Rhododendron	17.0	1.8	.0	.0	.0	.0	.0	.0	18.8
Gooseberries	254.9	1,774.1	.0	.0	6.5	6.9	1,094.8	331.0	3,468.2
Total questionable	543.5	1,853.9	.0	4.6	93.7	35.9	1,263.6	358.2	4,153.4
Unclassified species	1,542.1	5,174.8	16.3	57.0	712.0	695.1	2,198.0	2,092.8	12,488.1
Total all species	16,992.0	79,088.7	145.9	311.5	3,227.9	4,134.3	57,774.8	20,352.5	182,027.6
Sampling error (percent)	8	4	83	43	27	26	6	12	2

Table 13.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Canada yew	15.3	.0	.0	.0	15.3
Northern white-cedar	3,420.9	67.2	21.3	.0	3,509.4
Eastern hemlock	1,508.6	44.1	3.1	.0	1,555.8
Striped maple	4,252.2	1,622.0	419.3	79.2	6,372.7
Red maple	6,824.9	2,108.3	689.4	188.2	9,810.8
Mountain maple	2,589.4	1,142.7	241.0	36.5	4,009.6
Apple	36.5	10.1	2.0	.0	48.6
Smooth sumac	21.3	.0	.0	.0	21.3
Staghorn sumac	32.3	11.5	.0	.0	43.8
Basswood	5.3	.0	.0	1.9	7.2
Mountain ash	189.2	29.1	19.3	5.9	243.5
Hobblebush viburnum	3,450.2	800.8	346.3	171.3	4,768.6
Total readily browsed	22,346.1	5,835.8	1,741.7	483.0	30,406.6
Balsam fir	22,495.1	1,168.9	287.7	37.2	23,988.9
Juniper	1,611.4	4.6	.0	.0	1,616.0
White pine	628.6	9.1	4.9	10.5	653.1
Sugar maple	6,213.8	1,989.1	474.1	121.9	8,798.9
Shadbush	212.3	21.8	34.6	4.2	272.9
Yellow birch	2,990.1	1,259.8	247.4	59.8	4,557.1
Black birch	16.7	2.6	.0	.0	19.3
Paper birch	2,594.4	688.5	216.0	30.7	3,529.6
Red-osier dogwood	627.3	409.7	198.7	96.7	1,332.4
Hawthorn	47.1	.6	.0	.0	47.7
American hazelnut	488.9	417.5	29.6	5.4	941.4
Beaked hazelnut	1,918.1	387.8	81.7	10.7	2,398.3
Beech	3,421.8	625.6	139.6	37.9	4,224.9
White ash	1,046.2	310.9	80.1	50.6	1,487.8
Black ash	483.1	77.6	11.9	12.9	585.5
Huckleberries	78.3	25.7	13.8	.0	117.8
Winterberry	521.8	85.3	25.4	.0	632.5
Honeysuckle	982.8	192.5	48.0	18.2	1,241.5
Mountain holly	134.7	1.9	.0	.0	136.6
Balsam poplar	347.9	55.4	56.9	129.6	589.8
Bigtooth aspen	255.7	37.9	14.2	2.1	309.9
Quaking aspen	1,837.1	306.7	83.4	15.6	2,242.8
Pin cherry	1,086.5	114.2	119.5	6.1	1,326.3
Black cherry	549.1	183.7	38.4	12.9	784.1
Chokecherry	445.5	147.0	36.7	10.0	639.2
White oak	97.7	23.0	1.0	.0	121.7
Roses	197.3	34.9	.0	.0	232.2
Brambles	34,520.9	2,792.3	268.5	193.0	37,774.7
Willows	558.4	104.5	43.4	22.7	729.0
Common elderberry	117.7	13.1	1.8	.0	132.6
Red-berried elder	118.4	31.4	8.9	13.8	172.5
American elm	83.1	1.8	.0	.0	84.9
Blueberries	4,973.3	1,265.5	767.0	77.9	7,083.7
Sweetfern	530.3	83.9	26.4	.0	640.6
Maple-leaf viburnum	355.8	53.6	32.9	7.1	449.4
Wild raisin	817.0	318.5	8.9	20.4	1,164.8
Total commonly browsed	93,404.2	13,246.9	3,401.4	1,007.9	111,060.4

Table 13.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	79.9	17.3	.0	1.8	99.0
White spruce	430.4	10.9	.0	1.7	443.0
Black spruce	751.1	.0	.0	.0	751.1
Red spruce	5,080.3	158.7	54.8	12.2	5,306.0
Pitch pine	.5	.0	.0	.0	.5
Speckled alder	3,739.0	472.0	73.6	4.2	4,288.8
Bog Rosemary	10.0	.0	12.5	.0	22.5
Black chokeberry	34.1	52.5	.0	.0	86.6
Gray birch	654.1	120.9	86.3	28.3	889.6
Lambkill	5,087.7	493.3	26.6	.0	5,607.6
Labrador tea	523.3	.0	.0	.0	523.3
Eastern hophornbeam	344.1	35.4	2.7	2.1	384.3
Bear oak	173.4	.0	.0	.0	173.4
Red oak	472.8	52.2	127.7	32.9	685.6
Spiraea	3,868.9	755.7	23.8	9.4	4,657.8
Total infrequently browsed	21,249.6	2,168.9	408.0	92.6	23,919.1
Red ash	154.9	14.5	.0	.0	169.4
Witch-hazel	411.9	83.3	1.8	.0	497.0
Rhododendron	18.8	.0	.0	.0	18.8
Gooseberries	3,392.6	64.8	2.1	8.7	3,468.2
Total questionable	3,978.2	162.6	3.9	8.7	4,153.4
Unclassified species	9,379.3	2,516.1	401.-	191.7	12,488.1
Total, all species	150,357.4	23,930.3	5,956.0	1,783.9	182,027.6
Sampling error (percent)	3	6	11	17	2

Table 14.--Area of timberland by forest type, forest-type group, and stand-size class, Aroostook County, Maine, 1982 (Powell and Dickson 1984)

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	8.4	.0	.0	.0	8.4
Hemlock	25.4	8.5	.0	.0	33.9
White/red pine group	33.8	8.5	.0	.0	42.3
Balsam fir	116.4	143.6	16.6	8.4	285.0
Red spruce	116.0	74.6	25.2	.0	215.8
Red spruce/balsam fir	595.0	234.7	17.2	.0	846.9
White spruce	41.8	33.7	.0	.0	75.5
Black spruce	8.5	101.4	33.5	.0	143.4
Northern white-cedar	439.9	127.3	69.0	.0	636.2
Tamarack	17.2	8.8	8.8	.0	34.8
Spruce/fir group	1,334.8	724.1	170.3	8.4	2,237.6
Black ash/Amer. elm/red maple	8.8	33.6	.0	.0	42.4
Willow	.0	.0	17.3	.0	17.3
Elm/ash/red maple group	8.8	33.6	17.3	.0	59.7
Sugar maple/beech/yellow birch	669.4	116.9	59.9	.0	846.2
Red maple/northern hardwoods	8.5	75.9	8.5	.0	92.9
Pin cherry/reverting field	.0	.0	43.4	.0	43.4
Mixed northern hardwoods	16.5	33.7	.0	.0	50.2
Northern hardwoods group	694.4	226.5	111.8	.0	1,032.7
Aspen	42.3	235.9	83.6	.0	361.8
Paper birch	.0	25.5	8.8	.0	34.3
Aspen/birch group	42.3	261.4	92.4	.0	396.1
All forest types	2,114.1	1,254.1	391.8	8.4	3,768.4

Table 15.—Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Aroostook County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	10,842	6,711	4,425	4,264	2,870	1,800	608	237	178	0	31,935	12
Apple	0	115	0	0	0	25	0	0	0	0	140	100
Eastern hophornbeam	761	405	235	0	0	0	0	0	0	0	1,401	36
Pin cherry	351	113	0	0	0	0	0	0	0	0	464	50
Black cherry	118	0	0	0	0	0	0	0	0	0	118	71
Northern red oak	0	0	0	40	30	0	0	0	0	0	70	100
Total, all species	12,072	7,344	4,660	4,304	2,900	1,825	608	237	178	0	34,128	11
Sampling error (percent)	15	14	16	15	15	19	26	33	36	-	11	

Table 16.—Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Aroostook County, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	550,541	781,935	6,881,595	164,504	8,378,575
Saplings	72,328	787,276	8,726	12,052	880,382
Total sawtimber	622,869	1,569,211	6,890,321	176,556	9,258,957
Poletimber:					
Shrubs	459,776	1,171,975	4,366,006	67,016	6,064,771
Saplings	17,195	687,824	6,911	0	711,930
Total poletimber	476,971	1,859,799	4,372,917	67,016	6,776,701
Sapling/seedling:					
Shrubs	180,770	785,154	4,350,835	44,036	5,360,795
Saplings	3,574	220,031	18,844	0	242,451
Total sapling/seedling	184,344	1,005,185	4,369,679	44,036	5,603,246
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	1,284,184	4,434,195	15,632,917	287,608	21,638,904

Table 17.--Number of standing dead trees on timberland by species, condition class, and diameter class, Aroostook County, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	27,295	685	0	27,980	22,019	1,491	340	23,850	51,830	7
Tamarack	30	0	0	30	392	0	0	392	422	71
White spruce	1,414	41	30	1,485	661	67	39	767	2,252	25
Black spruce	1,592	0	0	1,592	1,824	29	0	1,853	3,445	30
Red spruce	3,937	199	104	4,240	2,012	291	151	2,454	6,694	13
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	0	30	3	33	594	85	34	713	746	33
Northern white-cedar	5,252	2,201	612	8,065	3,977	919	332	5,228	13,293	11
Hemlock	430	0	0	430	176	69	57	302	732	34
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	39,950	3,156	749	43,855	31,655	2,951	953	35,559	79,414	6
Sugar maple	388	38	11	437	511	212	555	1,278	1,715	20
Red maple	551	64	58	673	1,329	245	28	1,602	2,275	21
Yellow birch	130	28	32	190	1,216	1,193	1,853	4,262	4,452	12
Paper birch	438	77	30	545	1,662	438	187	2,287	2,832	19
Gray birch	0	0	0	0	0	0	0	0	0	0
Beech	453	29	117	599	1,155	1,182	889	3,226	3,825	18
White ash	60	0	0	60	292	58	30	380	440	64
Black ash	2,104	155	80	2,339	843	0	0	843	3,182	35
Aspen	1,429	60	30	1,519	2,970	216	78	3,264	4,783	20
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	581	88	59	728	413	0	55	468	1,196	66
Other hardwoods	521	0	0	521	713	64	84	861	1,382	33
Total hardwoods	6,655	539	417	7,611	11,104	3,608	3,759	18,471	26,082	8
Total, all species	46,605	3,695	1,166	51,466	42,759	6,559	4,712	54,030	105,496	5
Sampling error (percent)	8	14	16	7	6	9	10	5	5	

Table 18.--Number of trees with observed cavities on timberland by species and condition class, Aroostook County, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	2,217	1,243	0	0	3,460	1,024	2,553	3,577	7,037	12
Tamarack	127	200	0	0	327	0	0	0	327	62
White spruce	118	0	0	39	157	0	205	205	362	43
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	679	130	0	0	809	286	453	739	1,548	19
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	0	59	0	0	59	4	179	183	242	61
Northern white-cedar	1,479	2,218	79	406	4,182	1,192	1,209	2,401	6,583	11
Hemlock	28	65	14	0	107	0	40	40	147	47
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	4,648	3,915	93	445	9,101	2,506	4,639	7,145	16,246	8
Sugar maple	1,180	1,910	87	29	3,206	67	783	850	4,056	14
Red maple	689	1,958	0	0	2,647	95	773	868	3,515	19
Yellow birch	380	577	29	30	1,016	44	2,341	2,385	3,401	13
Paper birch	89	103	0	0	192	88	422	510	702	27
Gray birch	0	0	0	0	0	0	0	0	0	0
Beech	498	1,771	30	155	2,454	194	1,350	1,544	3,998	17
White ash	117	61	0	0	178	0	89	89	267	56
Black ash	0	0	28	59	87	331	0	331	418	42
Aspen	537	1,262	0	0	1,799	336	1,010	1,346	3,145	26
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	28	0	0	0	28	0	55	55	83	75
Other hardwoods	0	232	0	0	232	0	250	250	482	39
Total hardwoods	3,518	7,874	174	273	11,839	1,155	7,073	8,228	20,067	8
Total, all species	8,166	11,789	267	718	20,940	3,661	11,712	15,373	36,313	6
Sampling error (percent)	11	10	36	26		15	8		6	

Table 19.—Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Aroostook County, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Canada yew	5.2	.0	.0	.0	5.2	74	s[a]
Northern white-cedar	1,018.9	367.3	51.6	.0	1,437.8	15	13
Eastern hemlock	69.7	20.4	5.0	.0	95.1	28	16
Striped maple	731.5	143.9	68.4	.0	943.8	12	5
Red maple	1,128.4	720.9	252.8	.0	2,102.1	9	8
Mountain maple	856.0	474.2	168.6	.0	1,498.8	12	3
Apple	.0	1.7	10.6	.0	12.3	87	0
Staghorn sumac	10.3	.0	.0	.0	10.3	100	s
Mountain ash	34.8	19.2	19.1	.0	73.1	34	s
Hobblebush viburnum	842.6	177.4	34.4	.0	1,054.4	17	s
Total readily browsed	4,697.4	1,925.0	610.5	.0	7,232.9	5	
Balsam fir	2,764.0	2,186.8	596.2	.0	5,547.0	7	11
White pine	8.6	10.2	1.6	.0	20.4	31	8
Sugar maple	1,955.4	347.4	60.7	.0	2,363.5	13	5
Shadbush	13.7	25.4	28.2	.0	67.3	31	s
Yellow birch	859.8	166.0	85.9	.0	1,111.7	11	5
Paper birch	249.0	198.5	63.5	.0	511.0	15	16
Red-osier dogwood	94.7	236.2	555.5	.0	886.4	40	s
Hawthorn	1.7	.0	12.3	.0	14.0	89	0
American hazelnut	173.8	151.6	114.9	.0	440.3	20	s
Beaked hazelnut	376.7	308.2	65.8	.0	750.7	19	s
Beech	823.3	127.2	27.9	.0	978.4	15	8
White ash	42.1	72.4	6.9	.0	121.4	26	10
Black ash	102.5	47.7	7.1	.0	157.3	30	14
Huckleberries	13.8	1.7	.0	.0	15.5	90	s
Honeysuckle	147.1	103.9	78.0	.0	329.0	22	s
Mountain holly	3.4	12.1	.0	.0	15.5	71	s
Balsam poplar	134.0	302.5	43.4	.0	479.9	35	2
Bigtooth aspen	1.7	3.5	.0	.0	5.2	57	33
Quaking aspen	51.6	314.2	250.0	.0	615.8	28	14
Pin cherry	21.9	22.1	139.9	.0	183.9	45	7
Black cherry	6.9	6.9	51.8	.0	65.6	67	0
Chokecnerry	27.9	8.7	85.8	.0	122.4	52	s
Brambles	4,356.0	2,770.8	3,335.1	.0	10,461.9	12	s

Table 19.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Willows	46.3	86.0	157.3	.0	289.6	29	8
Common elderberry	31.2	1.8	8.7	.0	41.7	39	s
Red-berried elder	8.6	18.9	17.4	.0	44.9	51	s
American elm	1.7	1.7	.0	.0	3.4	71	29
Blueberries	22.0	126.1	3.4	.0	151.5	43	s
Sweetfern	55.4	50.1	95.5	.0	201.0	42	s
Maple-leaf viburnum	33.3	3.4	27.6	.0	64.3	57	s
Wild raisin	18.9	25.9	.0	.0	44.8	41	s
Total commonly browsed	12,447.0	7,737.9	5,920.4	.0	26,105.3	6	
Tamarack	3.5	22.4	21.5	.0	47.4	48	26
White spruce	87.3	49.8	30.0	.0	167.1	18	29
Black spruce	29.6	139.8	81.5	.0	250.9	27	25
Red spruce	519.0	180.6	104.9	.0	804.5	11	15
Speckled alder	308.4	372.1	146.8	.0	827.3	23	s
Gray birch	5.2	.0	.0	.0	5.2	100	33
Lambkill	49.4	504.1	329.1	.0	882.6	38	s
Eastern hophornbeam	14.1	13.7	.0	.0	27.8	45	44
Spiraea	.0	17.9	169.4	.0	187.3	80	s
Total infrequently browsed	1,016.5	1,300.4	883.2	.0	3,200.1	15	
Red ash	10.3	5.2	.0	.0	15.5	46	s
Witch-hazel	8.5	.0	.0	.0	8.5	83	s
Gooseberries	1,102.9	665.3	111.3	.0	1,879.5	24	s
Total questionable	1,121.7	670.5	111.3	.0	1,903.5	23	
Unclassified species	799.2	581.2	396.2	.0	1,776.6	13	
Total all species	20,081.8	12,215.0	7,921.6	.0	40,218.4	4	
Sampling error (percent)	7	10	17		4		

[a]Classed as shrub species.

Table 20.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Aroostook County, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group					All groups
	White/ red pine	Spruce/ fir	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Canada yew	.0	5.2	.0	.0	.0	5.2
Northern white-cedar	3.4	1,366.7	20.4	8.8	38.5	1,437.8
Eastern hemlock	27.5	44.1	.0	23.5	.0	95.1
Striped maple	12.1	352.1	22.4	536.9	20.3	943.8
Red maple	43.1	1,119.9	36.2	642.4	260.5	2,102.1
Mountain maple	5.2	954.9	13.7	281.8	243.2	1,498.8
Apple	.0	.0	.0	10.6	1.7	12.3
Staghorn sumac	.0	10.3	.0	.0	.0	10.3
Mountain ash	.0	73.1	.0	.0	.0	73.1
Hobblebush viburnum	.0	138.4	.0	912.6	3.4	1,054.4
Total readily browsed	91.3	4,064.7	92.7	2,416.6	567.6	7,232.9
Balsam fir	123.8	4,173.0	27.7	747.3	475.2	5,547.0
White pine	3.4	13.6	.0	1.7	1.7	20.4
Sugar maple	19.0	466.6	15.5	1,827.8	34.6	2,363.5
Shadbush	.0	30.6	3.3	12.2	21.2	67.3
Yellow birch	20.6	642.0	3.4	426.7	19.0	1,111.7
Paper birch	41.2	271.7	.0	82.0	116.1	511.0
Red-osier dogwood	.0	193.0	176.2	336.4	180.8	886.4
Hawthorn	.0	1.7	.0	12.3	.0	14.0
American hazelnut	.0	241.5	32.1	90.7	76.0	440.3
Beaked hazelnut	.0	249.4	.0	211.6	289.7	750.7
Beech	17.3	48.0	.0	904.5	8.6	978.4
White ash	3.4	54.8	6.9	39.0	17.3	121.4
Black ash	.0	128.5	3.4	11.4	14.0	157.3
Huckleberries	.0	15.5	.0	.0	.0	15.5
Honeysuckle	.0	239.0	.0	22.3	67.7	329.0
Mountain holly	.0	15.5	.0	.0	.0	15.5
Balsam poplar	.0	232.6	.0	62.8	184.5	479.9
Bigtooth aspen	.0	1.7	.0	.0	3.5	5.2
Quaking aspen	.0	102.9	34.6	168.3	310.0	615.8
Pin cherry	.0	70.6	.0	112.1	1.2	183.9
Black cherry	.0	10.4	.0	1.7	53.5	65.6
Chokecherry	.0	24.2	.0	67.1	31.1	122.4
Brambles	29.4	7,130.0	283.7	2,539.0	479.8	10,461.9
Willows	.0	105.9	8.9	24.3	150.5	289.6
Common elderberry	.0	29.5	.0	12.2	.0	41.7
Red-berried elder	.0	26.0	.0	18.9	.0	44.9
American elm	.0	1.7	1.7	.0	.0	3.4
Blueberries	.0	120.6	.0	.0	30.9	151.5
Sweetfern	.0	147.4	.0	3.5	50.1	201.0
Maple-leaf viburnum	.0	21.3	27.6	1.7	13.7	64.3
Wild raisin	1.7	27.8	.0	8.4	6.9	44.8
Total commonly browsed	259.8	14,837.0	625.0	7,745.9	2,637.6	26,105.3

Table 20.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group					All groups
	White/ red pine	Spruce/ fir	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Tamarack	.0	42.0	1.8	.0	3.6	47.4
White spruce	5.2	117.0	.0	29.3	15.6	167.1
Black spruce	.0	249.2	.0	.0	1.7	250.9
Red spruce	22.3	629.8	.0	141.9	10.5	804.5
Speckled alder	.0	624.3	23.4	29.3	150.3	827.3
Gray birch	.0	.0	.0	.0	5.2	5.2
Lambkill	.0	882.6	.0	.0	.0	882.6
Eastern hophornbeam	.0	3.5	3.4	19.2	1.7	27.8
Spiraea	.0	17.9	.0	.0	169.4	187.3
Total infrequently browsed	27.5	2,566.3	28.6	219.7	358.0	3,200.1
Red ash	.0	12.0	.0	.0	3.5	15.5
Witch-hazel	.0	8.5	.0	.0	.0	8.5
Gooseberries	84.1	978.0	6.9	544.2	266.3	1,879.5
Total questionable	84.1	998.5	6.9	544.2	269.8	1,903.5
Unclassified species	1.7	1,180.6	117.5	127.3	349.5	1,776.6
Total all species	464.4	23,647.1	870.7	11,053.7	4,182.5	40,218.4
Sampling error (percent)	53	7	61	11	16	4

Table 21.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Aroostook County, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Canada yew	5.2	.0	.0	.0	5.2
Northern white-cedar	1,406.7	31.1	.0	.0	1,437.8
Eastern hemlock	91.7	3.4	.0	.0	95.1
Striped maple	748.4	155.9	19.0	20.5	943.8
Red maple	1,480.8	508.8	97.2	15.3	2,102.1
Mountain maple	965.9	450.3	67.1	15.5	1,498.8
Apple	3.6	7.0	1.7	.0	12.3
Staghorn sumac	10.3	.0	.0	.0	10.3
Mountain ash	62.8	8.7	.0	1.6	73.1
Hobblebush viburnum	757.8	256.9	39.7	.0	1,054.4
Total readily browsed	5,533.2	1,422.1	224.7	52.9	7,232.9
Balsam fir	5,199.6	191.1	152.8	3.5	5,547.0
White pine	18.7	1.7	.0	.0	20.4
Sugar maple	1,725.6	583.6	39.3	15.0	2,363.5
Shadbush	60.5	3.4	3.4	.0	67.3
Yellow birch	869.2	203.2	34.1	5.2	1,111.7
Paper birch	432.6	73.2	5.2	.0	511.0
Red-osier dogwood	419.8	319.8	50.1	96.7	886.4
Hawthorn	14.0	.0	.0	.0	14.0
American hazelnut	207.9	218.5	12.2	1.7	440.3
Beaked hazelnut	573.3	158.5	18.9	.0	750.7
Beech	835.2	131.8	8.1	3.3	978.4
White ash	90.8	27.4	3.2	.0	121.4
Black ash	128.0	17.4	3.3	8.6	157.3
Huckleberries	12.0	3.5	.0	.0	15.5
Honeysuckle	225.0	90.3	10.3	3.4	329.0
Mountain holly	15.5	.0	.0	.0	15.5
Balsam poplar	244.0	51.4	54.9	129.6	479.9
Bigtooth aspen	5.2	.0	.0	.0	5.2
Quaking aspen	469.9	125.9	20.0	.0	615.8
Pin cherry	161.9	22.0	.0	.0	183.9
Black cherry	15.8	37.4	12.4	.0	65.6
Chokecherry	86.1	31.1	1.8	3.4	122.4
Brambles	9,641.5	820.4	.0	.0	10,461.9
Willows	228.9	15.6	34.7	10.4	289.6
Common elderberry	31.0	8.9	1.8	.0	41.7
Red-berried elder	12.2	18.9	.0	13.8	44.9
American elm	3.4	.0	.0	.0	3.4
Blueberries	132.5	19.0	.0	.0	151.5
Sweetfern	192.4	8.6	.0	.0	201.0
Maple-leaf viburnum	64.3	.0	.0	.0	64.3
Wild raisin	44.8	.0	.0	.0	44.8
Total commonly browsed	22,161.6	3,182.6	466.5	294.6	26,105.3

Table 21.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	28.3	17.3	.0	1.8	47.4
White spruce	158.4	7.0	.0	1.7	167.1
Black spruce	250.9	.0	.0	.0	250.9
Red spruce	769.4	28.0	7.1	.0	804.5
Speckled alder	624.5	189.1	13.7	.0	827.3
Gray birch	5.2	.0	.0	.0	5.2
Lambkill	875.7	.0	6.9	.0	882.6
Eastern hophornbeam	27.8	.0	.0	.0	27.8
Spiraea	187.3	.0	.0	.0	187.3
Total infrequently browsed	2,927.5	241.4	27.7	3.5	3,200.1
Red ash	13.9	1.6	.0	.0	15.5
Witch-hazel	6.9	1.6	.0	.0	8.5
Gooseberries	1,839.8	39.7	.0	.0	1,879.5
Total questionable	1,860.6	42.9	.0	.0	1,903.5
Unclassified species	1,096.8	511.3	82.4	86.1	1,776.6
Total all species	33,579.7	5,400.3	801.3	437.1	40,218.4
Sampling error (percent)	5	10	17	34	4

Table 22.--Area of timberland by forest type, forest-type group, and stand-size class, Capital Region, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	166.7	39.4	16.2	.0	222.3
White pine/hemlock	48.1	20.1	.0	.0	68.2
Hemlock	52.1	12.2	4.0	.0	68.3
White/red pine group	266.9	71.7	20.2	.0	358.8
Balsam fir	.0	35.6	27.7	.0	63.3
Red spruce	39.3	10.6	.0	.0	49.9
Red spruce/balsam fir	23.3	31.4	3.9	.0	58.6
White spruce	4.0	8.0	.0	.0	12.0
Northern white-cedar	16.3	24.2	4.0	.0	44.5
Tamarack	4.0	7.7	3.8	.0	15.5
Spruce/fir group	86.9	117.5	39.4	.0	243.8
White pine/no. red oak/white ash	.0	4.0	.0	.0	4.0
Oak/pine group	.0	4.0	.0	.0	4.0
Northern red oak	35.1	27.8	12.2	.0	75.1
Hawthorn/reverting field	3.9	.0	.0	.0	3.9
Oak/hickory group	39.0	27.8	12.2	.0	79.0
Black ash/Amer. elm/red maple	.0	12.1	.0	.0	12.1
Amer. elm/green ash	4.0	11.6	4.0	.0	19.6
Elm/ash/red maple group	4.0	23.7	4.0	.0	31.7
Sugar maple/beech/yellow birch	12.0	55.7	16.2	.0	83.9
Red maple/northern hardwoods	69.0	96.8	20.4	.0	186.2
Pin cherry/reverting field	.0	.0	16.3	.0	16.3
Mixed northern hardwoods	20.2	16.0	.0	.0	36.2
Northern hardwoods group	101.2	168.5	52.9	.0	322.6
Aspen	4.0	61.0	7.9	.0	72.9
Paper birch	.0	24.0	4.0	.0	28.0
Gray birch	.0	11.6	.0	.0	11.6
Aspen/birch group	4.0	96.6	11.9	.0	112.5
All forest types	502.0	509.8	140.6	.0	1,152.4

Table 23.—Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Capital Region, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Serviceberry	25	0	0	0	0	0	0	0	0	0	25	100
Beech	4,001	2,430	1,050	552	128	68	27	6	27	0	8,289	18
Apple	532	297	61	50	0	16	0	0	16	0	972	49
Eastern hophornbeam	444	323	0	15	0	0	0	0	0	0	782	31
Pin cherry	266	265	22	0	0	0	0	0	0	0	553	50
Black cherry	917	452	170	39	0	0	0	0	0	0	1,578	23
White oak	89	57	0	0	0	0	14	0	0	0	160	52
Northern red oak	5,225	3,716	2,093	1,575	588	390	184	106	69	6	13,952	14
Total, all species	11,499	7,540	3,396	2,231	716	474	225	112	112	6	26,311	10
Sampling error (percent)	12	12	17	17	22	22	28	43	35	74	10	

Table 24.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Capital Region, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	108,956	374,566	955,100	115,158	1,553,780
Saplings	25,194	146,877	13,782	0	185,853
Total sawtimber	134,150	521,443	968,882	115,158	1,739,633
Poletimber:					
Shrubs	125,665	700,841	1,714,400	312,947	2,853,853
Saplings	56,864	501,479	9,847	0	568,190
Total poletimber	182,529	1,202,320	1,724,247	312,947	3,422,043
Sapling/seedling:					
Shrubs	13,698	222,517	655,549	19,465	911,229
Saplings	14,220	78,913	4,219	0	97,352
Total sapling/seedling	27,918	301,430	659,768	19,465	1,008,581
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	344,597	2,025,193	3,352,897	447,570	6,170,257

Table 25.--Number of standing dead trees on timberland by species, condition class, and diameter class, Capital Region, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	899	30	0	929	4,952	92	0	5,044	5,973	15
Tamarack	48	45	0	93	75	15	0	90	183	49
White spruce	28	0	0	28	28	0	0	28	56	100
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	546	71	0	617	603	45	10	658	1,275	27
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	556	55	8	619	1,205	229	148	1,582	2,201	20
Northern white-cedar	922	51	0	973	549	74	0	623	1,596	30
Hemlock	0	0	0	0	188	12	30	230	230	77
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	2,999	252	8	3,259	7,600	467	188	8,255	11,514	10
Sugar maple	29	0	0	29	50	0	0	50	79	58
Red maple	56	42	0	98	675	93	88	856	954	22
Yellow birch	0	14	0	14	291	15	0	306	320	
Paper birch	222	0	0	222	721	26	0	747	969	27
Gray birch	474	0	0	474	834	0	0	834	1,308	25
Beech	0	15	0	15	45	0	13	58	73	83
White ash	23	0	0	23	51	0	0	51	74	75
Black ash	0	0	0	0	86	0	18	104	104	85
Aspen	494	15	0	509	1,132	31	0	1,163	1,672	20
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	334	60	0	394	103	0	0	103	497	61
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	218	82	66	366	595	91	89	775	1,141	31
Other hardwoods	254	15	0	269	775	19	29	823	1,092	26
Total hardwoods	2,104	243	66	2,413	5,358	275	237	5,870	8,283	10
Total, all species	5,103	495	74	5,672	12,958	742	425	14,125	19,797	7
Sampling error (percent)	12	26	66	12	9	17	22	8	7	

Table 26.--Number of trees with observed cavities on timberland by species and condition class, Capital Region, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		live top	top	top		top	top			
	Thousand trees									Percent
Balsam fir	113	117	0	0	230	184	427	611	841	28
Tamarack	16	16	0	0	32	0	0	0	32	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	29	0	0	29	0	0	0	29	100
Red spruce	67	50	0	0	117	22	36	58	175	38
Red pine	0	17	0	0	17	0	0	0	17	100
White pine	102	10	0	11	123	0	211	211	334	28
Northern white-cedar	45	431	0	66	542	125	161	286	828	34
Hemlock	90	122	0	0	212	0	15	15	227	32
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	433	792	0	77	1,302	331	850	1,181	2,483	16
Sugar maple	105	211	0	5	321	0	50	50	371	33
Red maple	962	1,473	11	30	2,476	27	279	306	2,782	16
Yellow birch	11	114	0	0	125	0	139	139	264	41
Paper birch	354	135	0	22	511	64	284	348	859	27
Gray birch	0	76	0	30	106	32	31	63	169	48
Beech	133	606	0	0	739	14	6	20	759	31
White ash	41	0	16	0	57	0	0	0	57	63
Black ash	0	0	0	0	0	0	39	39	39	85
Aspen	119	255	30	0	404	0	43	43	447	38
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	183	159	0	0	342	0	0	0	342	41
Basswood	64	79	0	0	143	0	0	0	143	69
Elm	0	0	0	0	0	15	42	57	57	60
Other hardwoods	162	264	0	0	426	69	180	249	675	29
Total hardwoods	2,134	3,372	57	87	5,650	221	1,093	1,314	6,964	10
Total, all species	2,567	4,164	57	164	6,952	552	1,943	2,495	9,447	9
Sampling error (percent)	15	12	63	42		33	18		9	

Table 27.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Capital Region, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	11.9	71.5	.0	.0	83.4	31	27
Eastern hemlock	30.2	48.7	.7	.0	79.6	18	31
Striped maple	16.6	55.2	105.5	.0	177.3	51	13
Red maple	85.8	323.5	74.2	.0	483.5	11	28
Mountain maple	16.6	25.6	.7	.0	42.9	30	10
Apple	3.8	3.5	1.6	.0	8.9	36	18
Staghorn sumac	4.2	1.9	3.5	.0	9.6	53	s[a]
Mountain ash	.0	13.0	.0	.0	13.0	100	s
Hobblebush viburnum	.0	3.7	.0	.0	3.7	80	s
Total readily browsed	169.1	546.6	186.2	.0	901.9	13	
Balsam fir	248.4	673.3	103.6	.0	1,025.3	8	25
Juniper	340.2	195.2	3.7	.0	539.1	43	s
White pine	21.9	31.7	7.5	.0	61.1	17	45
Sugar maple	8.1	69.3	18.5	.0	95.9	28	22
Shadbush	2.7	1.3	.0	.0	4.0	60	s
Yellow birch	34.0	40.5	9.4	.0	83.9	28	23
Paper birch	27.6	125.3	48.9	.0	201.8	21	18
Red-osier dogwood	.9	52.5	.9	.0	54.3	62	s
Hawthorn	4.8	12.3	1.7	.0	18.8	53	4
American hazelnut	20.3	5.1	.0	.0	25.4	75	s
Beaked hazelnut	88.7	120.6	13.7	.0	223.0	20	s
Beech	29.3	84.3	99.3	.0	212.9	30	23
White ash	69.6	138.7	15.2	.0	223.5	17	9
Black ash	.0	6.2	1.8	.0	8.0	41	8
Huckleberries	.0	20.4	.0	.0	20.4	91	s
Winterberry	2.6	25.4	24.1	.0	52.1	53	s
Honeysuckle	23.9	52.7	.0	.0	76.6	45	s
Mountain holly	.0	5.9	.0	.0	5.9	100	s
Balsam poplar	.0	.9	.0	.0	.9	100	0
Bigtooth aspen	23.0	8.8	14.2	.0	46.0	33	23
Quaking aspen	51.3	72.4	57.7	.0	181.4	26	16
Pin cherry	55.7	64.7	20.1	.0	140.5	22	4
Black cherry	59.6	44.7	45.8	.0	150.1	26	8
Chokecherry	34.6	58.7	56.7	.0	150.0	39	s
White oak	.0	1.9	.0	.0	1.9	62	33
Roses	.0	4.2	.6	.0	4.8	75	s
Brambles	440.7	883.7	545.2	.0	1,869.6	18	s

Table 27.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Willows	1.8	11.2	.0	.0	13.0	56	13
Common elderberry	2.7	4.5	4.6	.0	11.8	50	s
American elm	.9	7.0	.9	.0	8.8	49	30
Blueberries	13.8	76.2	39.7	.0	129.7	36	s
Sweetfern	.0	24.8	2.0	.0	26.8	39	s
Maple-leaf viburnum	.0	25.9	1.6	.0	27.5	56	s
Wild raisin	2.6	22.4	9.1	.0	34.1	39	s
Total commonly browsed	1,609.7	2,972.7	1,146.5	.0	5,728.9	9	
Tamarack	.0	.0	1.5	.0	1.5	72	33
White spruce	1.8	7.8	.0	.0	9.6	45	25
Black spruce	.0	.0	7.2	.0	7.2	100	0
Red spruce	40.8	44.8	3.0	.0	88.6	20	29
Speckled alder	14.2	80.5	103.3	.0	198.0	30	s
Gray birch	36.1	121.3	3.4	.0	160.8	19	27
Lambkill	.3	9.3	7.9	.0	17.5	70	s
Labrador tea	.0	.0	15.8	.0	15.8	100	s
Eastern hophornbeam	14.6	11.3	6.1	.0	32.0	28	36
Red oak	51.6	57.3	34.6	.0	143.5	17	s
Spiraea	249.0	453.7	58.3	.0	761.0	22	s
Total infrequently browsed	408.4	786.0	241.1	.0	1,435.5	13	
Red ash	60.3	64.5	9.8	.0	134.6	31	s
Witch-hazel	22.8	17.8	8.5	.0	49.1	40	s
Gooseberries	.0	59.9	3.3	.0	63.2	67	s
Total questionable	83.1	142.2	21.6	.0	246.9	25	
Unclassified species	347.7	759.3	73.1	.0	1,180.1	15	
Total all species	2,618.0	5,206.8	1,668.5	.0	9,493.3	7	
Sampling error (percent)	17	10	23		7		

[a]Classed as shrub species.

Table 28.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Capital Region, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group							All groups
	White/ red pine	Spruce/ fir	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	20.5	41.0	.0	5.9	3.4	7.5	5.1	83.4
Eastern hemlock	41.2	7.9	.0	3.4	.0	27.1	.0	79.6
Striped maple	31.6	.0	.0	10.0	.0	135.7	.0	177.3
Red maple	124.0	99.1	.0	26.4	6.2	175.8	52.0	483.5
Mountain maple	16.5	5.2	.0	8.8	.0	11.5	.9	42.9
Apple	3.5	.0	.0	.3	.0	2.5	2.6	8.9
Staghorn sumac	4.4	3.3	.0	.0	.0	1.9	.0	9.6
Mountain ash	.0	.0	.0	.0	.0	13.0	.0	13.0
Hobblebush viburnum	.0	.9	.0	.0	.0	2.8	.0	3.7
Total readily browsed	241.7	157.4	.0	54.8	9.6	377.8	60.6	901.9
Balsam fir	263.8	389.3	.0	29.8	4.2	232.3	105.9	1,025.3
Juniper	381.2	52.5	.0	91.8	.0	1.0	12.6	539.1
White pine	31.1	.8	.0	9.5	1.3	13.8	4.6	61.1
Sugar maple	45.1	4.4	.0	.0	.9	40.1	5.4	95.9
Shadbush	.8	.0	.0	3.2	.0	.0	.0	4.0
Yellow birch	24.3	3.8	.0	.9	.0	53.3	1.6	83.9
Paper birch	42.7	41.5	28.3	3.1	2.1	61.9	22.2	201.8
Red-osier dogwood	.9	1.0	.0	2.8	.0	.0	49.6	54.3
Hawthorn	14.9	.0	.0	1.4	.0	2.5	.0	18.8
American hazelnut	18.6	.0	.0	1.8	.0	.8	4.2	25.4
Beaked hazelnut	85.4	14.8	.0	41.0	6.8	46.7	28.3	223.0
Beech	23.3	1.7	.0	25.3	.7	152.2	9.7	212.9
White ash	87.0	12.0	.0	6.0	2.6	75.2	40.7	223.5
Black ash	.0	.8	.0	.0	2.1	2.6	2.5	8.0
Huckleberries	2.0	18.4	.0	.0	.0	.0	.0	20.4
Winterberry	15.5	7.0	.0	1.8	.0	26.9	.9	52.1
Honeysuckle	9.6	33.6	.0	3.7	.0	29.0	.7	76.6
Mountain holly	.0	5.9	.0	.0	.0	.0	.0	5.9
Balsam poplar	.0	.0	.0	.0	.0	.0	.9	.9
Bigtooth aspen	9.9	3.2	.0	5.1	.0	19.3	8.5	46.0
Quaking aspen	85.0	7.7	.0	1.0	2.4	35.7	49.6	181.4
Pin cherry	72.1	14.5	.7	2.1	4.4	32.9	13.8	140.5
Black cherry	46.0	4.5	.0	27.0	17.6	48.3	6.7	150.1
Chokecherry	79.5	.0	.0	9.8	20.6	9.1	31.0	150.0
White oak	.0	.0	.0	.7	.0	.9	.3	1.9
Roses	.0	.7	.0	.0	3.5	.6	.0	4.8
Brambles	637.8	235.9	.0	194.6	44.8	694.3	62.2	1,869.6

Table 28.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group							All groups
	White/ red pine	Spruce/ fir	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Willows	7.7	.9	.0	.0	.0	.9	3.5	13.0
Common elderberry	5.5	.0	.0	.0	.0	3.8	2.5	11.8
American elm	4.2	.9	.0	.0	.0	.9	2.8	8.8
Blueberries	13.0	21.9	.0	17.5	.0	67.1	10.2	129.7
Sweetfern	1.7	5.7	.0	.0	1.0	3.6	14.8	26.8
Maple-leaf viburnum	1.0	.7	13.1	5.9	.0	.9	5.9	27.5
Wild raisin	.9	10.3	.0	2.6	.0	7.1	13.2	34.1
Total commonly browsed	2,010.5	894.4	42.1	488.4	115.0	1,663.7	514.8	5,728.9
Tamarack	.0	1.5	.0	.0	.0	.0	.0	1.5
White spruce	.6	6.3	.0	1.8	.0	.9	.0	9.6
Black spruce	.0	.0	.0	.0	.0	7.2	.0	7.2
Red spruce	19.2	51.8	.0	3.8	1.2	12.3	.3	88.6
Speckled alder	36.3	53.8	.0	.0	.0	92.0	15.9	198.0
Gray birch	60.4	46.3	.0	4.4	.7	21.1	27.9	160.8
Lambkill	.0	7.9	.0	.0	.0	9.6	.0	17.5
Labrador tea	.0	.0	.0	.0	.0	15.8	.0	15.8
Eastern hophornbeam	11.5	2.6	.0	6.0	1.3	7.3	3.3	32.0
Red oak	57.8	9.9	.0	28.6	1.8	34.3	11.1	143.5
Spiraea	351.3	150.5	.0	.3	20.5	100.9	137.5	761.0
Total infrequently browsed	537.1	330.6	.0	44.9	25.5	301.4	196.0	1,435.5
Red ash	87.5	4.5	.0	3.0	29.0	10.6	.0	134.6
Witch-hazel	1.7	4.9	.0	22.3	.0	20.2	.0	49.1
Gooseberries	43.6	.0	.0	6.5	.0	7.1	6.0	63.2
Total questionable	132.8	9.4	.0	31.8	29.0	37.9	6.0	246.9
Unclassified species	434.3	142.6	.0	54.8	62.1	338.6	147.7	1,180.1
Total all species	3,356.4	1,534.4	42.1	674.7	241.2	2,719.4	925.1	9,493.3
Sampling error (percent)	15	17	100	40	39	16	23	7

Table 29.—Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Capital Region, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	81.7	1.7	.0	.0	83.4
Eastern hemlock	76.1	2.7	.8	.0	79.6
Striped maple	164.0	10.3	3.0	.0	177.3
Red maple	313.0	110.4	35.4	24.7	483.5
Mountain maple	26.5	9.4	7.0	.0	42.9
Apple	7.1	1.5	.3	.0	8.9
Staghorn sumac	6.3	3.3	.0	.0	9.6
Mountain ash	13.0	.0	.0	.0	13.0
Hobblebush viburnum	2.8	.9	.0	.0	3.7
Total readily browsed	690.5	140.2	46.5	24.7	901.9
Balsam fir	1,021.4	3.0	.9	.0	1,025.3
Juniper	534.5	4.6	.0	.0	539.1
White pine	59.8	1.3	.0	.0	61.1
Sugar maple	85.7	9.3	.9	.0	95.9
Shadbush	4.0	.0	.0	.0	4.0
Yellow birch	65.1	18.8	.0	.0	83.9
Paper birch	137.8	43.1	20.9	.0	201.8
Red-osier dogwood	24.5	14.1	15.7	.0	54.3
Hawthorn	18.8	.0	.0	.0	18.8
American hazelnut	25.4	.0	.0	.0	25.4
Beaked hazelnut	174.0	46.3	2.7	.0	223.0
Beech	137.0	61.4	1.6	12.9	212.9
White ash	187.6	24.5	11.4	.0	223.5
Black ash	8.0	.0	.0	.0	8.0
Huckleberries	.0	20.4	.0	.0	20.4
Winterberry	52.1	.0	.0	.0	52.1
Honeysuckle	56.4	1.7	18.5	.0	76.6
Mountain holly	5.9	.0	.0	.0	5.9
Balsam poplar	.9	.0	.0	.0	.9
Bigtooth aspen	34.1	11.6	.3	.0	46.0
Quaking aspen	125.1	51.7	4.6	.0	181.4
Pin cherry	117.1	20.6	2.8	.0	140.5
Black cherry	132.7	17.1	.3	.0	150.1
Chokecherry	126.7	23.3	.0	.0	150.0
White oak	1.9	.0	.0	.0	1.9
Roses	4.8	.0	.0	.0	4.8
Brambles	1,758.3	107.8	3.5	.0	1,869.6
Willows	5.3	7.7	.0	.0	13.0
Common elderberry	11.8	.0	.0	.0	11.8
American elm	7.9	.9	.0	.0	8.8
Blueberries	77.4	9.4	42.9	.0	129.7
Sweetfern	25.9	.0	.9	.0	26.8
Maple-leaf viburnum	26.8	.7	.0	.0	27.5
Wild raisin	24.5	9.6	.0	.0	34.1
Total commonly browsed	5,079.2	508.9	127.9	12.9	5,728.9

Table 29.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	1.5	.0	.0	.0	1.5
White spruce	9.6	.0	.0	.0	9.6
Black spruce	7.2	.0	.0	.0	7.2
Red spruce	87.8	.8	.0	.0	88.6
Speckled alder	168.2	28.8	1.0	.0	198.0
Gray birch	90.8	42.1	17.0	10.9	160.8
Lambkill	14.5	3.0	.0	.0	17.5
Labrador tea	15.8	.0	.0	.0	15.8
Eastern hophornbeam	29.6	2.4	.0	.0	32.0
Red oak	94.7	23.4	25.1	.3	143.5
Spiraea	641.5	108.9	9.7	.9	761.0
Total infrequently browsed	1,161.2	209.4	52.8	12.1	1,435.5
Red ash	121.7	12.9	.0	.0	134.6
Witch-hazel	42.9	6.2	.0	.0	49.1
Gooseberries	63.2	.0	.0	.0	63.2
Total questionable	227.8	19.1	.0	.0	246.9
Unclassified species	888.1	238.3	51.9	1.8	1,180.1
Total all species	8,046.8	1,115.9	279.1	51.5	9,493.3
Sampling error (percent)	8	13	21	41	7

Table 30.--Area of timberland by forest type, forest-type group, and stand-size class, Casco Bay, Maine, 1982 (Powell and Dickson 1984)

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	4.2	.0	.0	.0	4.2
White pine	279.5	75.8	25.0	.0	380.3
White pine/hemlock	122.4	50.8	8.3	.0	181.5
Hemlock	92.4	12.7	8.0	.0	113.1
White/red pine group	498.5	139.3	41.3	.0	679.1
Balsam fir	4.3	4.3	4.3	.0	12.9
Red spruce	8.2	.0	.0	.0	8.2
Red spruce/balsam fir	.0	8.3	.0	.0	8.3
White spruce	.0	.0	.0	5.0	5.0
Tamarack	4.4	.0	.0	.0	4.4
Spruce/fir group	16.9	12.6	4.3	5.0	38.8
Pitch pine	4.1	.0	4.2	.0	8.3
Loblolly/shortleaf group	4.1	.0	4.2	.0	8.3
White pine/no. red oak/wh. ash	4.9	16.7	.0	.0	21.6
Oak/pine group	4.9	16.7	.0	.0	21.6
Post, black or bear oak	.0	4.2	.0	.0	4.2
White oak	4.2	.0	.0	.0	4.2
Northern red oak	21.8	42.2	7.9	.0	71.9
Red maple/central hardwoods	12.5	12.7	7.9	.0	33.1
Mixed central hardwoods	8.4	12.5	.0	.0	20.9
Oak/hickory group	46.9	71.6	15.8	.0	134.3
Black ash/Amer. elm/red maple	3.7	8.5	4.5	.0	16.7
Willow	.0	.0	4.0	.0	4.0
Elm/ash/red maple group	3.7	8.5	8.5	.0	20.7
Sugar maple/beech/yellow birch	8.4	29.7	4.3	.0	42.4
Red maple/northern hardwoods	51.6	74.9	16.2	.0	142.7
Pin cherry/reverting field	.0	.0	17.3	.0	17.3
Mixed northern hardwoods	17.1	38.0	8.5	.0	63.6
Northern hardwoods group	77.1	142.6	46.3	.0	266.0
Aspen	4.3	38.2	22.2	.0	64.7
Paper birch	.0	12.8	.0	.0	12.8
Gray birch	4.2	.0	8.3	.0	12.5
Aspen/birch group	8.5	51.0	30.5	.0	90.0
All forest types	660.6	442.3	150.9	5.0	1,258.8

Table 31.—Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Casco Bay, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Eastern redcedar	31	0	0	0	0	0	0	0	0	0	31	100
Hickory	31	0	0	0	0	0	0	0	0	0	31	100
Beech	3,466	2,176	635	481	194	93	57	25	31	0	7,158	17
Apple	151	62	73	0	0	0	0	0	0	0	286	40
Blackgum	32	0	0	0	17	0	0	0	0	0	49	73
Eastern hophornbeam	484	28	31	0	0	0	0	0	0	0	543	48
Pin cherry	167	60	0	0	0	0	0	0	0	0	227	47
Black cherry	540	311	48	27	12	0	16	0	0	0	954	33
White oak	1,596	718	259	57	90	75	14	43	10	31	2,893	21
Scarlet oak	0	0	31	0	0	0	0	0	0	0	31	100
Northern red oak	10,052	7,350	2,850	1,782	1,163	371	276	151	53	11	24,059	11
Black oak	1,499	854	268	152	48	16	0	0	17	0	2,854	27
Total, all species	18,049	11,559	4,195	2,499	1,524	555	363	219	111	42	39,116	8
Sampling error (percent)	10	12	11	12	15	19	22	28	36	57	8	

Table 32.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Casco Bay, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	70,287	563,403	1,404,326	165,020	2,203,036
Saplings	33,278	254,605	10,394	918	299,195
Total sawtimber	103,565	818,008	1,414,720	165,938	2,502,231
Poletimber:					
Shrubs	140,587	676,373	1,239,771	367,407	2,424,138
Saplings	80,613	375,145	2,726	531	459,015
Total poletimber	221,200	1,051,518	1,242,497	367,938	2,883,153
Sapling/seedling:					
Shrubs	63,322	370,896	797,748	137,066	1,369,032
Saplings	23,341	133,259	8,756	0	165,356
Total sapling/seedling	86,663	504,155	806,504	137,066	1,534,388
Nonstocked:					
Shrubs	0	127,015	17,452	31,027	175,494
Saplings	0	0	0	0	0
Total nonstocked	0	127,015	17,452	31,027	175,494
Total, all classes	411,428	2,500,696	3,481,173	701,969	7,095,266

Table 33.—Number of standing dead trees on timberland by species, condition class, and diameter class, Casco Bay, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0–10.9	11.0–14.9	15+	Total	5.0–10.9	11.0–14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	817	31	0	848	1,636	31	0	1,667	2,515	22
Tamarack	0	0	0	0	50	0	0	50	50	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	29	0	0	29	0	0	0	0	29	100
Red spruce	436	0	0	436	441	34	0	475	911	36
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	1,357	51	111	1,519	2,035	226	98	2,359	3,878	18
Northern white-cedar	37	0	0	37	18	0	0	18	55	100
Hemlock	423	43	6	472	382	103	44	529	1,001	22
Other softwoods	152	21	0	173	284	15	0	299	472	57
Total softwoods	3,251	146	117	3,514	4,846	409	142	5,397	8,911	11
Sugar maple	0	0	0	0	58	15	0	73	73	60
Red maple	262	16	13	291	906	20	85	1,011	1,302	22
Yellow birch	0	15	0	15	58	0	0	58	73	60
Paper birch	18	0	0	18	90	61	0	151	169	41
Gray birch	93	0	0	93	679	0	0	679	772	28
Beech	0	0	0	0	223	0	0	223	223	48
White ash	58	0	0	58	30	0	28	58	116	79
Black ash	29	0	0	29	162	16	0	178	207	59
Aspen	367	0	0	367	823	16	0	839	1,206	28
White oaks	28	0	0	28	0	15	0	15	43	74
Red oaks	22	0	0	22	212	0	7	219	241	39
Basswood	0	0	0	0	26	0	0	26	26	100
Elm	75	9	0	84	294	110	26	430	514	37
Other hardwoods	224	0	0	224	126	0	20	146	370	43
Total hardwoods	1,176	40	13	1,229	3,687	253	166	4,106	5,335	11
Total, all species	4,427	186	130	4,743	8,533	662	308	9,503	14,246	8
Sampling error (percent)	13	30	36	12	10	19	226	10	8	

Table 34.--Number of trees with observed cavities on timberland by species and condition class, Casco Bay, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	47	22	0	0	69	31	159	190	259	43
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	0	0	0	0	0	0	18	18	18	100
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	104	300	0	14	418	37	385	422	840	21
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	31	178	0	0	209	0	313	313	522	27
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	182	500	0	14	696	68	875	943	1,639	15
Sugar maple	51	82	0	0	133	0	31	31	164	45
Red maple	748	1,262	15	0	2,025	62	485	547	2,572	15
Yellow birch	0	103	0	0	103	0	0	0	103	52
Paper birch	30	181	0	0	211	0	34	34	245	52
Gray birch	31	62	0	0	93	0	31	31	124	50
Beech	363	434	0	0	797	0	117	117	914	27
White ash	15	0	0	0	15	0	31	31	46	74
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	73	32	0	0	105	0	31	31	136	46
White oaks	0	88	0	0	88	0	16	16	104	51
Red oaks	223	166	0	0	389	0	7	7	396	28
Basswood	0	0	0	0	0	0	26	26	26	100
Elm	0	15	0	0	15	0	134	134	149	43
Other hardwoods	63	97	16	0	176	0	31	31	207	39
Total hardwoods	1,597	2,522	31	0	4,150	62	974	1,036	5,186	10
Total, all species	1,779	3,022	31	14	4,846	130	1,849	1,979	6,825	9
Sampling error (percent)	18	11	71	100		48	15		9	

Table 35.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Casco Bay, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Canadian yew	.9	5.5	3.7	.0	10.1	60	s[a]
Northern white-cedar	.0	13.8	.7	.0	14.5	95	0
Eastern hemlock	154.0	138.1	15.6	.0	307.7	15	20
Striped maple	25.4	31.3	.0	.0	56.7	35	14
Red maple	270.2	454.4	152.0	.0	876.6	10	25
Mountain maple	5.5	.0	3.2	.0	8.7	73	16
Apple	9.9	.9	4.1	.0	14.9	55	15
Staghorn sumac	.9	.0	.0	.0	.9	100	s
Basswood	6.3	.9	.0	.0	7.2	68	26
Hobblebush viburnum	19.9	.5	.0	.0	20.4	67	s
Total readily browsed	493.0	645.4	179.3	.0	1,317.7	8	
Balsam fir	111.2	278.9	87.1	.0	477.2	17	20
Juniper	221.4	204.8	82.8	6.8	515.8	42	s
White pine	99.1	112.4	12.2	.0	223.7	14	49
Sugar maple	80.9	45.0	23.7	.0	149.6	22	19
Shadbush	.0	.0	6.6	.0	6.6	66	s
Yellow birch	12.8	40.8	3.7	.0	57.3	28	18
Black birch	7.4	11.9	.0	.0	19.3	43	48
Paper birch	68.2	125.3	43.2	.0	236.7	17	22
Red-osier dogwood	1.1	.0	1.6	.0	2.7	71	s
Hawthorn	.6	2.4	.0	.0	3.0	67	0
American hazelnut	9.1	18.7	.0	.0	27.8	54	s
Beaked hazelnut	61.2	121.9	63.3	.0	246.4	32	s
Beech	53.7	105.9	3.6	.0	163.2	17	25
White ash	78.0	98.7	28.6	.0	205.3	16	14
Black ash	.0	4.5	2.9	.0	7.4	51	52
Huckleberries	11.0	49.6	.0	.0	60.6	64	s
Winterberry	90.5	151.6	.0	.0	242.1	55	s
Honeysuckle	22.9	11.3	.0	.0	34.2	61	s
Mountain holly	19.3	12.8	.0	.0	32.1	72	s
Balsam poplar	.9	.0	1.9	.0	2.8	74	33
Bigtooth aspen	22.5	17.3	1.8	.0	41.6	42	19
Quaking aspen	25.8	50.0	93.9	.0	169.7	28	10
Pin cherry	39.9	13.3	58.7	.0	111.9	43	9
Black cherry	39.0	86.8	43.7	.0	169.5	21	4
Chokecherry	.9	.0	7.3	.0	8.2	90	s
White oak	15.2	34.2	8.4	.0	57.8	28	28
Roses	90.9	.0	.0	.0	90.9	100	s
Brambles	443.9	482.3	321.7	10.7	1,258.6	17	s

Table 35.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Willows	49.6	22.7	25.0	.0	97.3	40	0
Common elderberry	.9	.0	.0	.0	.9	100	s
Red-berried elder	.9	.0	.0	.0	.9	100	s
American elm	.9	1.8	.7	.0	3.4	63	26
Blueberries	243.0	165.4	221.5	.0	629.9	30	s
Sweetfern	28.8	34.6	32.1	.0	95.5	43	s
Maple-leaf viburnum	6.8	12.6	16.9	.0	36.3	57	s
Wild raisin	71.2	38.2	42.4	.0	151.8	30	s
Total commonly browsed	2,029.5	2,355.7	1,235.3	17.5	5,638.0	8	
Tamarack	1.1	.0	.0	.0	1.1	100	100
Black spruce	.0	.9	.0	.0	.9	100	0
Red spruce	11.4	62.6	.0	.0	74.0	66	20
Pitch pine	.0	.0	.5	.0	.5	100	100
Speckled alder	84.9	62.9	36.1	.0	183.9	26	s
Black chokecherry	64.5	2.7	.0	.0	67.2	89	s
Gray birch	75.3	65.2	162.6	.0	303.1	22	26
Lambkill	47.4	90.7	76.8	.0	214.9	26	s
Labrador tea	10.9	.0	.0	.0	10.9	75	s
Eastern hophornbeam	24.5	31.3	5.3	.0	61.1	27	19
Bear oak	14.5	4.6	154.3	.0	173.4	70	2
Red oak	117.1	149.5	35.4	.0	302.0	12	17
Spiraea	164.3	207.0	154.7	119.3	645.3	27	s
Total infrequently browsed	615.9	677.4	625.7	119.3	2,038.3	12	
Red ash	.0	.9	.0	.0	.9	100	s
Witchhazel	80.3	172.9	10.5	.0	263.7	22	s
Gooseberries	.9	1.8	.0	.0	2.7	74	s
Total questionable	81.2	175.6	10.5	.0	267.3	22	
Unclassified species	433.4	597.4	371.9	38.7	1,441.4	14	
Total all species	3,653.0	4,451.5	2,422.7	175.5	10,702.7	6	
Sampling error (percent)	11	11	22	100	6		

[a]Classed as shrub species.

Table 36.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Casco Bay, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Canadian yew	6.4	.0	.0	.0	.0	.0	.0	3.7	10.1
Northern white-cedar	.0	.0	.0	.0	.0	.0	14.5	.0	14.5
Eastern hemlock	254.6	.0	.0	.0	5.8	.0	46.6	.7	307.7
Striped maple	29.9	.0	.0	.0	9.8	.0	15.2	1.8	56.7
Red maple	386.2	1.8	.0	18.4	153.9	9.3	240.2	66.8	876.6
Mountain maple	5.5	.0	.0	.0	.0	3.2	.0	.0	8.7
Apple	3.5	.0	.0	.0	7.3	.0	1.4	2.7	14.9
Staghorn sumac	.9	.0	.0	.0	.0	.0	.0	.0	.9
Basswood	7.2	.0	.0	.0	.0	.0	.0	.0	7.2
Hobblebush viburnum	19.9	.0	.0	.0	.0	.0	.5	.0	20.4
Total readily browsed	714.1	1.8	.0	18.4	176.8	12.5	318.4	75.7	1,317.7
Balsam fir	232.0	29.0	.0	.0	37.5	9.2	118.4	51.1	477.2
Juniper	290.1	6.8	.0	1.8	4.5	.0	21.7	190.9	515.8
White pine	153.7	.0	.0	3.1	38.2	.0	21.6	7.1	223.7
Sugar maple	83.6	4.6	.0	.0	8.2	.0	50.2	3.0	149.6
Shadbush	.0	.0	.0	.0	1.8	.0	4.8	.0	6.6
Yellow birch	11.0	.9	.0	7.3	.9	.0	31.4	5.8	57.3
Black birch	8.8	.0	.0	.0	.9	.0	7.2	2.4	19.3
Paper birch	91.8	.9	.0	.0	74.4	.0	31.8	37.8	236.7
Red-osier dogwood	2.7	.0	.0	.0	.0	.0	.0	.0	2.7
Hawthorn	2.5	.0	.0	.0	.0	.0	.5	.0	3.0
American hazelnut	18.9	.0	.0	.0	.0	.0	3.4	5.5	27.8
Beaked hazelnut	111.4	.0	.0	.0	30.2	.0	96.3	8.5	246.4
Beech	68.3	.0	.0	2.7	23.1	.0	60.7	8.4	163.2
White ash	113.8	.9	.0	.0	19.6	3.2	52.4	15.4	205.3
Black ash	.9	.0	.0	.0	.0	.0	6.5	.0	7.4
Huckleberries	15.6	.0	.0	34.0	11.0	.0	.0	.0	60.6
Winterberry	115.3	.0	.0	.0	85.3	.0	34.3	7.2	242.1
Honeysuckle	22.7	.9	.0	.0	8.8	.0	1.8	.0	34.2
Mountain holly	.0	.0	.0	.0	19.3	.0	12.8	.0	32.1
Balsam poplar	.0	.9	.0	.0	.0	.0	.0	1.9	2.8
Bigtooth aspen	27.1	.0	.0	.0	4.6	.0	.9	9.0	41.6
Quaking aspen	50.4	12.0	.0	.0	4.6	.0	42.1	60.6	169.7
Pin cherry	22.6	.5	.0	22.5	.0	.0	51.8	14.5	111.9
Black cherry	61.9	.9	.0	.0	16.5	.0	24.4	65.8	169.5
Chokecherry	.0	.0	.0	.0	.0	.0	8.2	.0	8.2
White oak	18.8	.0	.0	6.4	28.9	.0	3.7	.0	57.8
Roses	.0	.0	.0	.0	.0	.0	90.9	.0	90.9
Brambles	616.7	81.7	.0	10.3	37.5	41.9	322.5	148.0	1,258.6

Table 36.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Willows	49.2	.0	.0	.0	.0	22.8	19.0	6.2	97.3
Common elderberry	.9	.0	.0	.0	.0	.0	.0	.0	.9
Red-berried elder	.9	.0	.0	.0	.0	.0	.0	.0	.9
American elm	.9	.0	.0	.0	.0	.0	2.5	.0	3.4
Blueberries	270.9	.0	66.0	19.2	39.6	.0	183.9	50.3	629.9
Sweetfern	31.0	.0	.0	.0	5.4	.0	50.4	8.7	95.5
Maple-leaf viburnum	6.8	.0	.0	.0	.9	.0	16.9	11.7	36.3
Wild raisin	73.2	.0	.0	.5	5.7	23.9	34.3	14.2	151.8
Total commonly browsed	2,574.4	140.0	66.0	107.8	507.4	101.0	1,407.3	734.1	5,638.0
Tamarack	.0	1.1	.0	.0	.0	.0	.0	.0	1.1
Black spruce	.0	.0	.0	.0	.0	.0	.9	.0	.9
Red spruce	13.3	56.0	.0	.0	1.4	.0	3.3	.0	74.0
Pitch pine	.0	.0	.5	.0	.0	.0	.0	.0	.5
Speckled alder	82.7	4.6	.0	.0	.0	53.1	41.3	2.2	183.9
Black chokecherry	64.5	.0	.0	.0	1.8	.0	.9	.0	67.2
Gray birch	89.7	.0	11.6	3.2	22.3	.0	42.3	134.0	303.1
Lambkill	128.8	8.3	.0	.6	56.1	1.8	8.4	10.9	214.9
Labrador tea	3.6	.0	.0	.0	7.3	.0	.0	.0	10.9
Eastern hophornbeam	38.9	.0	.0	.0	5.0	.0	16.3	.9	61.1
Bear oak	9.0	.0	51.5	.0	.0	.0	.0	112.9	173.4
Red oak	141.1	.9	.0	11.6	64.3	.0	72.1	12.0	302.0
Spiraea	316.6	121.9	.0	1.3	5.8	7.5	91.4	100.8	645.3
Total infrequently browsed	888.2	192.8	63.6	16.7	164.0	62.4	276.9	373.7	2,038.3
Red ash	.0	.9	.0	.0	.0	.0	.0	.0	.9
Witch-hazel	138.0	.0	.0	4.6	57.7	.0	58.1	5.3	263.7
Gooseberries	.0	.0	.0	.0	.0	.0	2.7	.0	2.7
Total questionable	138.0	.9	.0	4.6	57.7	.0	60.8	5.3	267.3
Unclassified species	501.5	61.8	16.3	57.0	294.9	43.8	355.5	110.6	1,441.4
Total all species	4,816.2	397.3	145.9	204.5	1,200.8	219.7	2,418.9	1,299.4	10,702.7
Sampling error (percent)	10	51	83	53	23	46	20	26	6

Table 37.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Casco Bay, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Canada yew	10.1	.0	.0	.0	10.1
Northern white-cedar	14.5	.0	.0	.0	14.5
Eastern hemlock	304.1	3.6	.0	.0	307.7
Striped maple	51.0	5.7	.0	.0	56.7
Red maple	720.4	130.1	19.7	6.4	876.6
Mountain maple	8.7	.0	.0	.0	8.7
Apple	13.3	1.6	.0	.0	14.9
Staghorn sumac	.9	.0	.0	.0	.9
Basswood	5.3	.0	.0	1.9	7.2
Hobblebush viburnum	19.5	.9	.0	.0	20.4
Total readily browsed	1,147.8	141.9	19.7	8.3	1,317.7
Balsam fir	469.9	7.3	.0	.0	477.2
Juniper	515.8	.0	.0	.0	515.8
White pine	220.9	.0	2.8	.0	223.7
Sugar maple	131.3	12.8	5.5	.0	149.6
Shadbush	6.6	.0	.0	.0	6.6
Yellow birch	46.2	11.1	.0	.0	57.3
Black birch	16.7	2.6	.0	.0	19.3
Paper birch	180.6	38.2	15.1	2.8	236.7
Red-osier dogwood	2.7	.0	.0	.0	2.7
Hawthorn	2.4	.6	.0	.0	3.0
American hazelnut	16.1	8.0	.0	3.7	27.8
Beaked hazelnut	175.0	61.6	9.8	.0	246.4
Beech	144.5	11.7	6.1	.9	163.2
White ash	172.6	18.9	11.0	2.8	205.3
Black ash	7.4	.0	.0	.0	7.4
Huckleberries	45.0	1.8	13.8	.0	60.6
Winterberry	167.2	69.4	5.5	.0	242.1
Honeysuckle	34.2	.0	.0	.0	34.2
Mountain holly	32.1	.0	.0	.0	32.1
Balsam poplar	2.8	.0	.0	.0	2.8
Bigtooth aspen	40.7	.0	.9	.0	41.6
Quaking aspen	154.9	8.3	5.6	.9	169.7
Pin cherry	101.5	6.0	4.4	.0	111.9
Black cherry	145.3	20.5	3.7	.0	169.5
Chokecherry	8.2	.0	.0	.0	8.2
White oak	56.8	.0	1.0	.0	57.8
Roses	90.9	.0	.0	.0	90.9
Brambles	1,105.7	100.1	48.0	4.8	1,258.6
Willows	97.3	.0	.0	.0	97.3
Common elderberry	.9	.0	.0	.0	.9
Red-berried elder	.9	.0	.0	.0	.9
American elm	2.5	.9	.0	.0	3.4
Blueberries	561.4	34.4	14.7	19.4	629.9
Sweetfern	67.0	28.5	.0	.0	95.5
Maple-leaf viburnum	18.5	8.0	9.8	.0	36.3
Wild raisin	125.0	15.1	8.9	2.8	151.8
Total commonly browsed	4,967.5	465.8	166.6	38.1	5,638.0

Table 37.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	1.1	.0	.0	.0	1.1
Black spruce	.9	.0	.0	.0	.9
Red spruce	72.2	.0	.0	1.8	74.0
Pitch pine	.5	.0	.0	.0	.5
Speckled alder	176.5	7.4	.0	.0	183.9
Black chokecherry	14.7	52.5	.0	.0	67.2
Gray birch	238.3	27.5	25.7	11.6	303.1
Lambkill	204.9	10.0	.0	.0	214.9
Labrador tea	10.9	.0	.0	.0	10.9
Eastern hophornbeam	54.8	3.6	2.7	.0	61.1
Bear oak	173.4	.0	.0	.0	173.4
Red oak	257.7	22.4	21.9	.0	302.0
Spiraea	571.9	59.5	5.4	8.5	645.3
Total infrequently browsed	1,777.8	182.9	55.7	21.9	2,038.3
Red ash	.9	.0	.0	.0	.9
Witch-hazel	203.3	58.6	1.8	.0	263.7
Gooseberries	2.7	.0	.0	.0	2.7
Total questionable	206.9	58.6	1.8	.0	267.3
Unclassified species	1,235.5	126.8	74.6	4.5	1,441.4
Total all species	9,335.5	976.0	318.4	72.8	10,702.7
Sampling error (percent)	7	15	20	27	6

Table 38.--Area of timberland by forest type, forest-type group, and stand-size class, Hancock County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	.0	.0	9.2	.0	9.2
White pine	18.4	9.2	.0	.0	27.6
White pine/hemlock	9.3	.0	.0	.0	9.3
Hemlock	46.8	.0	.0	.0	46.8
White/red pine group	74.5	9.2	9.2	.0	92.9
Balsam fir	.0	46.3	.0	.0	46.3
Red spruce	75.1	9.2	.0	9.7	94.0
Red spruce/balsam fir	56.4	83.3	37.5	.0	177.2
Black spruce	.0	9.6	.0	.0	9.6
Northern white-cedar	47.5	18.8	.0	.0	66.3
Tamarack	9.6	.0	.0	.0	9.6
Spruce/fir group	188.6	167.2	37.5	9.7	403.0
Northern red oak	9.2	.0	.0	.0	9.2
Mixed central hardwoods	.0	.0	9.7	.0	9.7
Oak/hickory group	9.2	.0	9.7	.0	18.9
Black ash/Amer. elm/red maple	.0	9.5	.0	.0	9.5
Elm/ash/red maple group	.0	9.5	.0	.0	9.5
Sugar maple/beech/yellow birch	56.3	37.1	.0	.0	93.4
Black cherry	.0	.0	9.2	.0	9.2
Red maple/northern hardwoods	18.3	9.6	27.9	.0	55.8
Mixed northern hardwoods	.0	18.4	9.2	.0	27.6
Northern hardwoods group	74.6	65.1	46.3	.0	186.0
Aspen	.0	28.0	9.7	.0	37.7
Paper birch	.0	28.3	.0	.0	28.3
Aspen/birch group	.0	56.3	9.7	.0	66.0
All forest types	346.9	307.3	112.4	9.7	776.3

Table 39.--Number of all live nut and fruit producing trees on timberland by species and diameter class, Hancock County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	3,659	611	392	117	98	25	20	33	15	0	4,970	41
Eastern hophornbeam	274	207	0	0	0	0	0	0	0	0	481	62
Black cherry	199	133	0	0	0	0	0	0	0	0	332	71
Northern red oak	309	256	133	0	33	59	22	0	0	0	812	56
Total, all species	4,441	1,207	525	117	131	84	42	33	15	0	6,595	32
Sampling error (percent)	38	34	49	58	78	59	70	100	100	-	32	

Table 40.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Hancock County, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	0	332,096	1,867,133	95,035	2,294,264
Saplings	42,707	186,716	0	0	229,423
Total sawtimber	42,707	518,812	1,867,133	95,035	2,523,687
Poletimber:					
Shrubs	1,938	447,666	706,031	60,995	1,216,630
Saplings	7,905	324,018	7,751	0	339,674
Total poletimber	9,843	771,684	713,782	60,995	1,556,304
Sapling/seedling:					
Shrubs	0	843,819	1,734,478	60,291	2,638,588
Saplings	0	67,869	1,909	0	69,778
Total sapling/seedling	0	911,688	1,736,387	60,291	2,708,366
Nonstocked:					
Shrubs	0	246,025	467,448	0	713,473
Saplings	0	0	0	0	0
Total nonstocked	0	246,025	467,448	0	713,473
Total, all classes	52,550	2,448,209	4,784,750	216,321	7,501,830

Table 41.--Number of standing dead trees on timberland by species, condition class, and diameter class, Hancock County, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	2,941	112	0	3,053	7,924	201	33	8,158	11,211	20
Tamarack	99	0	0	99	136	0	0	136	235	77
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	138	0	0	138	69	0	0	69	207	56
Red spruce	432	0	34	466	1,141	166	0	1,307	1,773	44
Red pine	82	0	0	82	0	0	0	0	82	100
White pine	0	33	0	33	515	0	20	535	568	69
Northern white-cedar	1,180	179	29	1,388	857	0	0	857	2,245	32
Hemlock	200	0	0	200	0	33	0	33	233	65
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	5,072	324	63	5,459	10,642	400	53	11,095	16,554	16
Sugar maple	69	0	0	69	0	66	0	66	135	71
Red maple	587	34	0	621	895	0	0	895	1,516	38
Yellow birch	69	0	0	69	275	103	69	447	516	39
Paper birch	837	0	0	837	1,316	0	0	1,316	2,153	31
Gray birch	202	0	0	202	686	0	0	686	888	50
Beech	66	169	35	270	1,403	184	145	1,732	2,002	40
White ash	0	0	0	0	0	0	0	0	0	0
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	487	0	0	487	1,040	0	0	1,040	1,527	34
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods	226	33	0	259	821	0	0	821	1,080	46
Total hardwoods	2,543	236	35	2,814	6,436	353	214	7,003	9,817	15
Total, all species	7,615	560	98	8,273	17,078	753	267	18,098	26,371	12
Sampling error (percent)	16	29	57	15	14	29	35	13	12	

Table 42.--Number of trees with observed cavities on timberland by species and condition class, Hancock County, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	167	718	0	263	1,148	420	1,020	1,440	2,588	30
Tamarack	0	0	0	0	0	100	66	166	166	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	100	258	0	0	358	140	335	475	833	39
Red pine	0	0	0	0	0	81	0	81	81	100
White pine	135	92	0	62	289	33	20	53	342	42
Northern white-cedar	101	1,114	0	208	1,423	272	277	549	1,972	26
Hemlock	203	420	0	0	623	66	33	99	722	38
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	706	2,602	0	533	3,841	1,112	1,751	2,863	6,704	16
Sugar maple	102	237	0	14	353	69	66	135	488	46
Red maple	663	2,264	0	69	2,996	328	423	751	3,747	19
Yellow birch	69	825	0	138	1,032	69	378	447	1,479	33
Paper birch	289	1,073	0	67	1,429	228	527	755	2,184	33
Gray birch	0	272	0	0	272	136	202	338	610	57
Beech	0	693	0	253	946	203	999	1,202	2,148	36
White ash	69	18	0	0	87	0	0	0	87	100
Black ash	0	43	0	69	112	0	0	0	112	72
Aspen	100	748	0	0	848	216	363	579	1,427	39
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	67	171	0	0	238	0	0	0	238	77
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods	0	484	0	66	550	259	752	1,011	1,561	39
Total hardwoods	1,359	6,828	0	676	8,863	1,508	3,710	5,218	14,081	13
Total, all species	2,065	9,430	0	1,209	12,704	2,620	5,461	8,081	20,785	11
Sampling error (percent)	21	16	-	35		20	17		11	

Table 43.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Hancock County, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	53.9	140.5	24.6	.0	219.0	40	15
Eastern hemlock	28.0	13.6	.0	.0	41.6	39	23
Striped maple	50.3	29.9	.0	.0	80.2	53	15
Red maple	76.7	78.2	43.8	.0	198.7	22	28
Mountain maple	25.5	3.9	.0	.0	29.4	81	0
Apple	.0	.0	1.9	.0	1.9	100	100
Total readily browsed	234.4	266.1	70.3	.0	570.8	20	
Balsam fir	565.6	611.1	26.0	.0	1,202.7	14	21[a]
Juniper	.0	1.9	.0	.0	1.9	100	s
White pine	19.5	.0	3.9	.0	23.4	49	25
Sugar maple	6.0	7.7	.0	.0	13.7	65	57
Shadbush	.0	9.7	8.2	.0	17.9	71	s
Yellow birch	239.6	20.1	.0	.0	259.7	69	7
Paper birch	7.8	33.5	4.0	.0	45.3	37	39
Red-osier dogwood	.0	.0	11.5	.0	11.5	100	s
American hazelnut	.0	1.9	.0	.0	1.9	100	s
Beech	64.2	39.3	.0	.0	103.5	40	47
White ash	.0	11.9	3.9	.0	15.8	61	37
Black ash	2.0	32.2	.0	.0	34.2	95	6
Huckleberries	.0	.0	10.3	.0	10.3	100	s
Winterberry	.0	7.8	.0	.0	7.8	100	s
Honeysuckle	.0	10.0	34.4	.0	44.4	65	s
Mountain holly	2.0	2.0	.0	.0	4.0	70	s
Balsam poplar	9.7	.0	.0	.0	9.7	100	0
Bigtooth aspen	1.9	.0	.0	.0	1.9	100	0
Quaking aspen	1.9	44.7	47.1	.0	93.7	48	15
Pin cherry	7.8	.0	1.9	.0	9.7	82	0
Black cherry	10.1	3.9	27.4	.0	41.4	48	9
Chokecherry	.0	2.0	20.5	.0	22.5	92	0
Roses	5.8	.0	128.8	.0	134.6	69	s
Brambles	393.7	143.6	497.2	.0	1,034.5	32	s
Blueberries	1,406.5	449.6	974.6	455.1	3,285.8	31	s
Sweetfern	.0	1.9	5.7	.0	7.6	79	s
Total commonly browsed	2,744.1	1,434.8	1,805.4	455.1	6,439.4	17	

Table 43.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Tamarack	.0	11.6	.0	.0	11.6	100	0
White spruce	.0	16.1	2.0	.0	18.1	80	11
Black spruce	8.1	14.0	.0	.0	22.1	65	73
Red spruce	282.4	152.2	49.9	.0	484.5	26	23
Speckled alder	160.7	15.5	.0	.0	176.2	39	s
Gray birch	19.4	21.3	3.9	.0	44.6	59	26
Lambkill	147.3	213.5	267.1	24.6	652.5	45	s
Labrador tea	.0	.0	42.0	.0	42.0	100	s
Eastern hophornbeam	18.1	2.0	.0	.0	20.1	91	0
Red oak	1.9	.0	.0	.0	1.9	100	100
Spiraea	22.2	44.7	403.2	.0	470.1	48	
Total infrequently browsed	660.1	490.9	768.1	24.6	1,943.7	25	
Gooseberries	3.9	.0	54.3	.0	58.2	94	s
Total questionable	3.9	.0	54.3	.0	58.2	94	
Other species	160.1	352.4	215.2	233.8	961.5	31	
Total all species	3,802.6	2,544.2	2,913.3	713.5	9,973.6	15	
Sampling error (percent)	32	25	41	100	17		

[a]Classed as shrub species.

Table 44.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Hancock County, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	2.0	188.6	24.6	.0	1.9	1.9	219.0
Eastern hemlock	15.9	17.9	.0	.0	7.8	.0	41.6
Striped maple	.0	10.1	.0	.0	54.0	16.1	80.2
Red maple	11.6	113.2	16.4	6.1	43.3	8.1	198.7
Mountain maple	.0	25.5	.0	.0	3.9	.0	29.4
Apple	.0	.0	.0	.0	1.9	.0	1.9
Total readily browsed	29.5	355.3	41.0	6.1	112.8	26.1	570.8
Balsam fir	142.9	802.4	8.0	4.0	176.0	69.4	1,202.7
Juniper	1.9	.0	.0	.0	.0	.0	1.9
White pine	15.5	1.9	.0	.0	6.0	.0	23.4
Sugar maple	4.0	.0	.0	.0	9.7	.0	13.7
Shadbush	.0	.0	.0	.0	8.2	9.7	17.9
Yellow birch	35.1	26.1	.0	.0	194.5	4.0	259.7
Paper birch	.0	17.6	.0	.0	13.6	14.1	45.3
Red-osier dogwood	.0	.0	.0	.0	11.5	.0	11.5
American hazelnut	.0	.0	.0	.0	.0	1.9	1.9
Beech	13.6	9.7	1.9	.0	64.2	14.1	103.5
White ash	.0	3.9	.0	.0	3.8	8.1	15.8
Black ash	.0	.0	1.9	32.3	.0	.0	34.2
Huckleberries	.0	.0	10.3	.0	.0	.0	10.3
Winterberry	.0	7.8	.0	.0	.0	.0	7.8
Honeysuckle	1.9	8.1	.0	.0	7.7	26.7	44.4
Mountain holly	.0	2.0	.0	.0	2.0	.0	4.0
Balsam poplar	.0	.0	.0	.0	9.7	.0	9.7
Bigtooth aspen	.0	1.9	.0	.0	.0	.0	1.9
Quaking aspen	1.9	54.3	.0	.0	31.5	6.0	93.7
Pin cherry	.0	9.7	.0	.0	.0	.0	9.7
Black cherry	2.0	1.9	.0	.0	29.3	8.2	41.4
Chokecherry	.0	.0	.0	.0	22.5	.0	22.5
Roses	.0	5.8	.0	.0	77.5	51.3	134.6
Brambles	166.7	300.7	.0	4.0	342.1	221.0	1,034.5
Blueberries	219.0	1,997.1	198.0	.0	654.7	217.0	3,285.8
Sweetfern	.0	1.9	.0	.0	5.7	.0	7.6
Total commonly browsed	604.5	3,252.8	220.1	40.3	1,670.2	651.5	6,439.4

Table 44.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Tamarack	.0	11.6	.0	.0	.0	.0	11.6
White spruce	.0	1.9	.0	.0	.0	16.2	18.1
Black spruce	.0	20.2	.0	.0	.0	1.9	22.1
Red spruce	37.3	361.6	7.9	6.0	51.8	19.9	484.5
Speckled alder	7.7	116.2	.0	.0	52.3	.0	176.2
Gray birch	3.9	19.4	.0	.0	.0	21.3	44.6
Lambkill	40.7	344.7	12.3	.0	254.8	.0	652.5
Labrador tea	.0	.0	.0	.0	42.0	.0	42.0
Eastern hophornbeam	.0	18.1	.0	.0	2.0	.0	20.1
Red oak	.0	1.9	.0	.0	.0	.0	1.9
Spiraea	.0	45.4	.0	2.0	356.1	66.6	470.1
Total infrequently browsed	89.6	941.0	20.2	8.0	759.0	125.9	1,943.7
Gooseberries	54.3	3.9	.0	.0	.0	.0	58.2
Total questionable	54.3	3.9	.0	.0	.0	.0	58.2
Unclassified species	112.4	407.2	6.1	118.9	244.7	72.2	961.5
Total all species	890.3	4,960.2	287.4	173.3	2,786.7	875.7	9,973.6
Sampling error (percent)	40	26	77	100	38	56	15

Table 45.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Hancock County, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	203.5	15.5	.0	.0	219.0
Eastern hemlock	41.6	.0	.0	.0	41.6
Striped maple	50.0	6.0	24.2	.0	80.2
Red maple	153.3	33.5	11.9	.0	198.7
Mountain maple	27.4	.0	2.0	.0	29.4
Apple	1.9	.0	.0	.0	1.9
Total readily browsed	477.7	55.0	38.1	.0	570.8
Balsam fir	1,196.8	5.9	.0	.0	1,202.7
Juniper	1.9	.0	.0	.0	1.9
White pine	23.4	.0	.0	.0	23.4
Sugar maple	9.7	.0	4.0	.0	13.7
Shadbush	12.1	5.8	.0	.0	17.9
Yellow birch	112.4	110.5	36.8	.0	259.7
Paper birch	33.6	9.8	1.9	.0	45.3
Red-osier dogwood	.0	11.5	.0	.0	11.5
American hazelnut	1.9	.0	.0	.0	1.9
Beech	81.7	17.9	1.9	2.0	103.5
White ash	7.8	2.0	6.0	.0	15.8
Black ash	24.1	10.1	.0	.0	34.2
Huckleberries	10.3	.0	.0	.0	10.3
Winterberry	.0	.0	7.8	.0	7.8
Honeysuckle	44.4	.0	.0	.0	44.4
Mountain holly	4.0	.0	.0	.0	4.0
Balsam poplar	9.7	.0	.0	.0	9.7
Bigtooth aspen	1.9	.0	.0	.0	1.9
Quaking aspen	82.2	.0	11.5	.0	93.7
Pin cherry	9.7	.0	.0	.0	9.7
Black cherry	27.9	13.5	.0	.0	41.4
Chokecherry	22.5	.0	.0	.0	22.5
Roses	99.7	34.9	.0	.0	134.6
Brambles	1,032.6	1.9	.0	.0	1,034.5
Blueberries	2,029.5	1,005.6	229.4	21.3	3,285.8
Sweetfern	.0	7.6	.0	.0	7.6
Total commonly browsed	4,879.8	1,237.0	299.3	23.3	6,439.4

Table 45.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	11.6	.0	.0	.0	11.6
White spruce	18.1	.0	.0	.0	18.1
Black spruce	22.1	.0	.0	.0	22.1
Red spruce	478.4	6.1	.0	.0	484.5
Speckled alder	127.1	43.3	5.8	.0	176.2
Gray birch	31.0	.0	13.6	.0	44.6
Lambkill	652.5	.0	.0	.0	652.5
Labrador tea	42.0	.0	.0	.0	42.0
Eastern hophornbeam	20.1	.0	.0	.0	20.1
Red oak	1.9	.0	.0	.0	1.9
Spiraea	213.1	257.0	.0	.0	470.1
Total infrequently browsed	1,617.9	306.4	19.4	.0	1,943.7
Gooseberries	58.2	.0	.0	.0	58.2
Total questionable	58.2	.0	.0	.0	58.2
Unclassified species	640.0	285.8	35.7	.0	961.5
Total all species	7,673.6	1,884.2	392.5	23.3	9,973.6
Sampling error (percent)	16	38	51	63	15

Table 46.--Area of timberland by forest type, forest-type group, and stand-size class, Penobscot County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	9.5	9.6	.0	.0	19.1
White pine	57.8	9.6	9.6	.0	77.0
White pine/hemlock	48.3	38.4	.0	.0	86.7
Hemlock	103.7	28.7	.0	.0	132.4
White/red pine group	219.3	86.3	9.6	.0	315.2
Balsam fir	9.6	28.8	9.0	.0	47.4
Red spruce	67.3	28.6	.0	.0	95.9
Red spruce/balsam fir	211.4	96.0	28.6	.0	336.0
White spruce	9.6	.0	.0	.0	9.6
Black spruce	.0	.0	9.5	.0	9.5
Northern white-cedar	125.0	162.6	9.6	.0	297.2
Tamarack	.0	9.5	.0	.0	9.5
Spruce/fir group	422.9	325.5	56.7	.0	805.1
Black ash/Amer. elm/red maple	19.1	19.2	.0	.0	38.3
Willow	.0	.0	9.6	.0	9.6
Elm/ash/red maple group	19.1	19.2	9.6	.0	47.9
Sugar maple/beech/yellow birch	133.5	151.9	19.3	.0	304.7
Black cherry	.0	9.6	.0	.0	9.6
Red maple/northern hardwoods	28.5	66.7	9.8	.0	105.0
Pin cherry/reverting field	.0	.0	.0	9.0	9.0
Mixed northern hardwoods	48.0	28.6	.0	.0	76.6
Northern hardwoods group	210.0	256.8	29.1	9.0	504.9
Aspen	19.2	104.6	.0	.0	123.8
Paper birch	.0	38.1	.0	.0	38.1
Gray birch	.0	19.2	18.5	.0	37.7
Aspen/birch group	19.2	161.9	18.5	.0	199.6
All forest types	890.5	849.7	123.5	9.0	1,872.7

Table 47.--Number of all live nut and fruit producing trees on timberland by species and diameter class, Penobscot County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Serviceberry	67	0	0	0	0	0	0	0	0	0	67	100
Beech	14,008	8,111	3,490	2,135	971	336	140	84	31	0	29,306	17
Apple	0	290	0	33	0	0	0	0	0	0	323	100
Eastern hophornbeam	1,978	195	81	0	0	0	0	0	0	0	2,254	36
Pin cherry	0	67	57	0	0	0	0	0	0	0	124	100
Black cherry	864	134	67	67	33	0	0	0	0	0	1,165	73
Chokecherry	67	0	0	0	0	0	0	0	0	0	67	100
White oak	456	196	0	0	0	0	0	0	0	0	652	100
Northern red oak	268	67	67	127	0	133	33	0	0	0	695	50
Total, all species	17,708	9,060	3,762	2,362	1,004	469	173	84	31	0	34,653	15
Sampling error (percent)	17	18	22	21	25	36	41	72	100	-	15	

Table 48.—Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Penobscot County, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	95,243	504,559	1,789,388	185,125	2,574,315
Saplings	50,525	330,321	5,825	1,953	388,624
Total sawtimber	145,768	834,880	1,795,213	187,078	2,962,939
Poletimber:					
Shrubs	123,886	893,014	3,223,923	261,968	4,502,791
Saplings	86,760	452,447	1,936	0	541,143
Total poletimber	210,646	1,345,461	3,225,859	261,968	5,043,934
Sapling/seedling:					
Shrubs	0	957,619	620,266	290,684	1,868,569
Saplings	0	90,857	5,989	0	96,846
Total sapling/seedling	0	1,048,476	626,255	290,684	1,965,415
Nonstocked:					
Shrubs	0	59,867	558,757	0	618,624
Saplings	0	0	0	0	0
Total nonstocked	0	59,867	558,757	0	618,624
Total, all classes	356,414	3,288,684	6,206,084	739,730	10,590,912

Table 49.--Number of standing dead trees on timberland by species, condition class, and diameter class, Penobscot County, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	12,457	352	0	12,809	13,069	505	0	13,574	26,383	12
Tamarack	0	0	0	0	391	0	18	409	409	82
White spruce	269	0	0	269	33	0	0	33	302	45
Black spruce	133	0	0	133	34	0	0	34	167	82
Red spruce	3,448	33	0	3,481	1,991	167	17	2,175	5,656	20
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	299	101	0	400	1,389	133	55	1,577	1,977	30
Northern white-cedar	4,841	505	67	5,413	2,781	311	33	3,125	8,538	16
Hemlock	100	0	0	100	425	47	70	542	642	31
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	21,547	991	67	22,605	20,113	1,163	193	21,469	44,074	10
Sugar maple	343	33	13	389	702	70	64	836	1,225	33
Red maple	654	66	0	720	1,284	236	58	1,578	2,298	24
Yellow birch	67	0	0	67	656	368	215	1,239	1,306	25
Paper birch	139	182	0	321	535	291	94	920	1,241	31
Gray birch	551	0	0	551	1,681	0	0	1,681	2,232	33
Beech	1,284	108	0	1,392	1,566	333	282	2,181	3,573	34
White ash	333	0	33	366	133	0	24	157	523	43
Black ash	1,768	0	0	1,768	624	267	33	924	2,692	35
Aspen	1,028	33	0	1,061	1,651	134	67	1,852	2,913	27
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	33	33	68	0	0	68	101	75
Basswood	0	34	0	34	0	0	0	0	34	100
Elm	333	0	34	367	374	165	27	566	933	46
Other hardwoods	212	0	0	212	312	33	22	367	579	52
Total hardwoods	6,712	456	113	7,281	9,586	1,897	886	12,369	19,650	11
Total, all species	28,259	1,447	180	29,886	29,699	3,060	1,079	33,838	63,724	7
Sampling error (percent)	11	19	42	10	8	13	19	7	7	

Table 50.--Number of trees with observed cavities on timberland by species and condition class, Penobscot County, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	660	514	0	0	1,174	911	1,705	2,616	3,790	26
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	296	94	0	0	390	67	242	309	699	31
Red pine	0	15	0	0	15	0	0	0	15	100
White pine	33	36	11	0	80	0	311	311	391	52
Northern white-cedar	670	2,354	0	608	3,632	1,706	1,023	2,729	6,361	17
Hemlock	49	236	65	0	350	66	191	257	607	30
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	1,708	3,249	76	608	5,641	2,750	3,472	6,222	11,863	13
Sugar maple	732	628	0	0	1,360	222	497	719	2,079	28
Red maple	465	1,296	33	133	1,927	319	791	1,110	3,037	21
Yellow birch	285	612	0	66	963	0	607	607	1,570	22
Paper birch	79	68	0	0	147	0	213	213	360	39
Gray birch	0	133	0	0	133	67	0	67	200	58
Beech	466	1,221	0	66	1,753	66	796	862	2,615	24
White ash	13	66	0	0	79	133	0	133	212	49
Black ash	0	151	0	0	151	0	234	234	385	46
Aspen	399	257	0	0	656	67	369	436	1,092	32
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	33	33	0	0	66	33	0	33	99	100
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods	33	0	0	0	33	0	34	34	67	100
Total hardwoods	2,505	4,465	33	265	7,268	907	3,541	4,448	11,716	12
Total, all species	4,213	7,714	109	873	12,909	3,657	7,013	10,670	23,579	8
Sampling error (percent)	17	13	68	32		22	13		8	

Table 51.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Penobscot County, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	230.2	374.9	56.2	.0	661.3	24	12
Eastern hemlock	307.7	286.1	17.4	.0	611.2	21	8
Striped maple	421.2	381.9	2.0	.0	805.1	19	3
Red maple	554.0	490.8	43.1	.0	1,087.9	12	9
Mountain maple	117.1	60.4	.0	.0	177.5	39	2
Apple	1.9	.0	.0	.0	1.9	100	100[a]
Staghorn sumac	.0	1.9	.0	.0	1.9	100	s
Mountain ash	5.8	.0	.0	.0	5.8	75	s
Hobblebush viburnum	52.4	3.9	.0	.0	56.3	33	s
Total readily browsed	1,690.3	1,599.9	118.7	.0	3,408.9	9	
fir	1,899.4	1,355.6	133.8	.0	3,388.8	11	9
Juniper	.0	.0	.0	556.9	556.9	100	s
White pine	72.0	48.6	11.7	.0	132.3	26	16
Sugar maple	322.5	376.2	17.6	.0	716.3	25	5
Shadbush	7.8	66.7	1.9	.0	76.4	83	s
Yellow birch	299.4	303.9	9.7	.0	613.0	20	2
Paper birch	56.3	164.3	19.4	.0	240.0	27	16
Red-osier dogwood	.0	23.4	93.0	.0	116.4	78	s
Hawthorn	.0	.0	11.9	.0	11.9	85	17
American hazelnut	.0	3.9	.0	.0	3.9	100	s
Beaked hazelnut	95.3	120.0	.0	.0	215.3	31	s
Beech	321.8	502.0	5.9	.0	829.7	19	14
White ash	99.9	94.3	.0	.0	194.2	26	0
Black ash	66.5	66.2	.0	.0	132.7	35	6
Winterberry	15.5	239.2	11.6	.0	266.3	52	s
Honeysuckle	107.3	51.8	.0	.0	159.1	36	s
Mountain holly	9.7	27.0	.0	.0	36.7	60	s
Balsam poplar	17.5	7.8	.0	.0	25.3	53	8
Bigtooth aspen	23.2	19.3	7.3	.0	49.8	39	27
Quaking aspen	42.7	213.8	45.6	.0	302.1	53	1
Pin cherry	13.6	21.1	9.7	.0	44.4	37	7
Black cherry	40.7	21.4	.0	.0	62.1	65	0
Chokecherry	3.9	17.4	83.3	.0	104.6	66	s
Roses	.0	1.9	.0	.0	1.9	100	s
Brambles	1,289.7	2,087.2	277.2	1.8	3,655.9	19	s
Willows	11.6	11.6	79.4	.0	102.6	78	17
Common elderberry	.0	31.1	.0	.0	31.1	63	s

Table 51.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
American elm	.0	50.3	.0	.0	50.3	96	7
Blueberries	189.9	357.1	199.3	.0	746.3	32	s
Sweetfern	3.9	124.5	.0	.0	128.4	78	s
Maple-leaf viburnum	21.3	103.5	2.0	.0	126.8	83	s
Wild raisin	15.6	111.2	1.8	.0	128.6	75	s
Total commonly browsed	5,047.0	6,622.3	1,022.1	558.7	13,250.1	9	
Tamarack	3.9	3.9	5.8	.0	13.6	55	43
White spruce	40.9	13.6	3.9	.0	58.4	31	23
Black spruce	.0	15.5	23.2	.0	38.7	67	30
Red spruce	219.7	267.0	34.9	.0	521.6	17	13
Speckled alder	275.7	437.1	192.7	.0	905.5	24	s
Gray birch	21.5	82.9	36.3	.0	140.7	31	23
Lambkill	104.6	158.0	40.7	.0	303.3	38	s
Labrador tea	.0	48.4	123.9	.0	172.3	58	s
Eastern hophornbeam	79.1	17.5	.0	.0	96.6	40	22
Red oak	3.9	7.8	1.9	.0	13.6	51	14
Spiraea	7.8	152.1	507.9	59.9	727.7	48	s
Total infrequently browsed	757.1	1,203.8	971.2	59.9	2,992.0	18	
Red ash	.0	7.8	.0	.0	7.8	79	s
Witch-hazel	1.9	.0	.0	.0	1.9	100	s
Rhododendron	1.9	2.0	.0	.0	3.9	71	s
Gooseberries	49.0	3.9	11.6	.0	64.5	38	s
Total questionable	52.8	13.7	11.6	.0	78.1	33	
Unclassified species	358.2	419.3	406.8	.0	1,184.3	25	
Total all species	7,905.4	9,859.0	2,530.4	618.6	20,913.4	7	
Sampling error (percent)	12	13	33	100	7		

[a]Classed as shrub species.

Table 52.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Penobscot County, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group					All groups
	White/ red pine	Spruce/ fir	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	37.0	585.2	.0	19.6	19.5	661.3
Eastern hemlock	234.1	261.3	.0	110.0	5.8	611.2
Striped maple	33.1	127.0	.0	445.1	199.9	805.1
Red maple	177.2	438.4	27.1	232.0	213.2	1,087.9
Mountain maple	7.8	121.0	.0	19.5	29.2	177.5
Apple	.0	1.9	.0	.0	.0	1.9
Staghorn sumac	.0	.0	.0	.0	1.9	1.9
Mountain ash	.0	3.9	.0	1.9	.0	5.8
Hobblebush viburnum	3.9	9.8	.0	42.6	.0	56.3
Total readily browsed	493.1	1,548.5	27.1	870.7	469.5	3,408.9
Balsam fir	612.2	2,039.5	32.9	466.9	237.3	3,388.8
Juniper	.0	.0	.0	556.9	.0	556.9
White pine	70.3	33.1	.0	27.0	1.9	132.3
Sugar maple	91.0	168.0	.0	439.9	17.4	716.3
Shadbush	3.9	5.9	.0	3.9	62.7	76.4
Yellow birch	118.5	182.7	3.9	286.7	21.2	613.0
Paper birch	17.6	107.2	1.9	86.2	27.1	240.0
Red-osier dogwood	.0	17.6	89.1	4.0	5.7	116.4
Hawthorn	.0	.0	1.9	10.0	.0	11.9
American hazelnut	.0	3.9	.0	.0	.0	3.9
Beeked hazelnut	27.1	81.7	13.6	85.2	7.7	215.3
Beech	48.6	42.8	.0	693.8	44.5	829.7
White ash	3.9	50.7	1.9	105.1	32.6	194.2
Black ash	.0	81.9	13.7	5.8	31.3	132.7
Winterberry	.0	105.2	.0	102.5	58.6	266.3
Honeysuckle	9.7	99.5	.0	21.3	28.6	159.1
Mountain holly	.0	32.9	.0	3.8	.0	36.7
Balsam poplar	.0	19.5	.0	.0	5.8	25.3
Bigtooth aspen	21.4	13.1	.0	3.9	11.4	49.8
Quaking aspen	32.9	80.4	9.7	11.6	167.5	302.1
Pin cherry	3.9	.0	7.8	9.7	23.0	44.4
Black cherry	2.0	.0	34.8	23.4	1.9	62.1
Chokecherry	.0	11.7	.0	67.8	25.1	104.6
Roses	.0	.0	.0	1.9	.0	1.9
Brambles	633.1	1,204.1	626.2	1,064.5	128.0	3,655.9
Willows	7.8	5.7	79.4	9.7	.0	102.6
Common elderberry	.0	.0	.0	17.4	13.7	31.1
American elm	.0	.0	.0	48.4	1.9	50.3
Blueberries	263.8	212.0	83.2	49.6	137.7	746.3
Sweetfern	3.9	7.7	1.9	9.5	105.4	128.4
Maple-leaf viburnum	.0	.0	.0	23.3	103.5	126.8
Wild raisin	.0	29.1	1.9	1.9	95.7	128.6
Total commonly browsed	1,971.6	4,635.9	1,003.8	4,241.6	1,397.2	13,250.1

Table 52.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group					All groups
	White/ red pine	Spruce/ fir	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Tamarack	.0	11.7	.0	.0	1.9	13.6
White spruce	7.8	39.0	.0	5.8	5.8	58.4
Black spruce	.0	25.1	13.6	.0	.0	38.7
Red spruce	105.4	319.3	3.9	59.9	33.1	521.6
Speckled alder	23.4	412.1	184.5	142.5	143.0	905.5
Gray birch	15.5	30.8	1.9	21.3	71.2	140.7
Lambkill	7.8	231.4	.0	13.3	50.8	303.3
Labrador tea	.0	158.7	13.6	.0	.0	172.3
Eastern hophornbeam	15.5	11.8	1.9	63.5	3.9	96.6
Red oak	7.8	.0	.0	3.9	1.9	13.6
Spiraea	19.5	52.3	61.9	175.7	418.3	727.7
Total infrequently browsed	202.7	1,292.2	281.3	485.9	729.9	2,992.0
Red ash	.0	.0	.0	2.0	5.8	7.8
Witch-hazel	.0	.0	.0	1.9	.0	1.9
Rhododendron	2.0	1.9	.0	.0	.0	3.9
Gooseberries	.0	52.9	.0	.0	11.6	64.5
Total questionable	2.0	54.8	.0	3.9	17.4	78.1
Unclassified species	188.4	471.0	253.6	91.5	179.8	1,184.3
Total all species	2,857.8	8,002.4	1,565.8	5,693.6	2,793.8	20,913.4
Sampling error (percent)	25	12	49	18	30	7

Table 53.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Penobscot County, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	655.4	5.9	.0	.0	661.3
Eastern hemlock	611.2	.0	.0	.0	611.2
Striped maple	593.3	172.9	33.0	5.9	805.1
Red maple	864.3	142.0	40.8	40.8	1,087.9
Mountain maple	91.7	46.7	39.1	.0	177.5
Apple	1.9	.0	.0	.0	1.9
Staghorn sumac	.0	1.9	.0	.0	1.9
Mountain ash	1.9	3.9	.0	.0	5.8
Hobblebush viburnum	52.4	3.9	.0	.0	56.3
Total readily browsed	2,872.1	377.2	112.9	46.7	3,408.9
Balsam fir	3,285.6	85.7	13.6	3.9	3,388.8
Juniper	556.9	.0	.0	.0	556.9
White pine	128.4	3.9	.0	.0	132.3
Sugar maple	591.6	116.9	1.9	5.9	716.3
Shadbush	53.6	.0	22.8	.0	76.4
Yellow birch	450.3	129.6	23.3	9.8	613.0
Paper birch	173.0	65.0	.0	2.0	240.0
Red-osier dogwood	38.8	60.0	17.6	.0	116.4
Hawthorn	11.9	.0	.0	.0	11.9
American hazelnut	.0	3.9	.0	.0	3.9
Beeked hazelnut	126.3	38.7	50.3	.0	215.3
Beech	769.4	33.0	23.4	3.9	829.7
White ash	128.5	56.0	.0	9.7	194.2
Black ash	119.1	13.6	.0	.0	132.7
Winterberry	246.8	11.7	7.8	.0	266.3
Honeysuckle	137.5	21.6	.0	.0	159.1
Mountain holly	34.8	1.9	.0	.0	36.7
Balsam poplar	21.4	1.9	2.0	.0	25.3
Bigtooth aspen	32.3	17.5	.0	.0	49.8
Quaking aspen	253.9	36.6	7.8	3.8	302.1
Pin cherry	44.4	.0	.0	.0	44.4
Black cherry	62.1	.0	.0	.0	62.1
Chokecherry	21.5	71.5	11.6	.0	104.6
Roses	1.9	.0	.0	.0	1.9
Brambles	3,566.0	89.9	.0	.0	3,655.9
Willows	54.1	44.6	2.0	1.9	102.6
Common elderberry	29.1	2.0	.0	.0	31.1
American elm	50.3	.0	.0	.0	50.3
Blueberries	746.3	.0	.0	.0	746.3
Sweetfern	118.9	9.5	.0	.0	128.4
Maple-leaf viburnum	124.9	1.9	.0	.0	126.8
Wild raisin	128.6	.0	.0	.0	128.6
Total commonly browsed	12,108.2	916.9	184.1	40.9	13,250.1

Table 53.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	13.6	.0	.0	.0	13.6
White spruce	54.5	3.9	.0	.0	58.4
Black spruce	38.7	.0	.0	.0	38.7
Red spruce	521.6	.0	.0	.0	521.6
Speckled alder	872.6	.0	32.9	.0	905.5
Gray birch	117.4	11.7	5.8	5.8	140.7
Lambkill	274.3	29.0	.0	.0	303.3
Labrador tea	172.3	.0	.0	.0	172.3
Eastern hophornbeam	96.6	.0	.0	.0	96.6
Red oak	13.6	.0	.0	.0	13.6
Spiraea	696.7	31.0	.0	.0	727.7
Total infrequently browsed	2,871.9	75.6	38.7	5.8	2,992.0
Red ash	7.8	.0	.0	.0	7.8
Witch-hazel	1.9	.0	.0	.0	1.9
Rhododendron	3.9	.0	.0	.0	3.9
Gooseberries	64.5	.0	.0	.0	64.5
Total questionable	78.1	.0	.0	.0	78.1
Unclassified species	991.4	160.0	31.0	1.9	1,184.3
Total all species	18,921.7	1,529.7	366.7	95.3	20,913.4
Sampling error (percent)	8	15	25	31	7

Table 54.--Area of timberland by forest type, forest-type group, and stand-size class, Piscataquis County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	31.4	20.9	.0	.0	52.3
White pine/hemlock	12.3	.0	.0	.0	12.3
Hemlock	21.1	10.4	.0	.0	31.5
White/red pine group	64.8	31.3	.0	.0	96.1
Balsam fir	42.2	41.9	31.5	.0	115.6
Red spruce	106.8	156.3	20.5	.0	283.6
Red spruce/balsam fir	456.9	129.4	75.3	.0	661.6
White spruce	10.5	.0	.0	.0	10.5
Black spruce	.0	10.5	.0	.0	10.5
Northern white-cedar	182.3	20.4	41.9	.0	244.6
Tamarack	10.5	10.5	10.5	.0	31.5
Spruce/fir group	809.2	369.0	179.7	.0	1,357.9
Mixed central hardwoods	10.5	.0	.0	.0	10.5
Oak/hickory group	10.5	.0	.0	.0	10.5
Black ash/Amer. elm/red maple	.0	10.5	.0	.0	10.5
Elm/ash/red maple group	.0	10.5	.0	.0	10.5
Sugar maple/beech/yellow birch	303.6	127.8	30.9	.0	462.3
Red maple/northern hardwoods	75.5	45.5	22.9	.0	143.9
Mixed northern hardwoods	10.5	31.4	10.5	.0	52.4
Northern hardwoods group	389.6	204.7	64.3	.0	658.6
Aspen	10.5	52.6	20.4	.0	83.5
Paper birch	.0	.0	21.0	.0	21.0
Aspen/birch group	10.5	52.6	41.4	.0	104.5
All forest types	1,284.6	668.1	285.4	.0	2,238.1

Table 55.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Piscataquis County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	8,076	5,406	4,815	2,219	1,569	682	271	19	36	0	23,093	17
Apple	219	73	0	0	0	0	0	0	0	0	292	61
Eastern hophornbeam	737	578	0	0	0	0	0	0	0	0	1,315	42
Pin cherry	73	0	0	0	0	0	0	0	0	0	73	100
Black cherry	0	143	0	60	0	0	0	0	0	0	203	77
Chokecherry	201	0	0	0	0	0	0	0	0	0	201	100
Northern red oak	0	0	0	0	36	0	23	37	37	0	133	78
Total, all species	9,306	6,200	4,815	2,279	1,605	682	294	56	73	0	25,310	16
Sampling error (percent)	20	19	21	20	21	28	36	74	71	-	16	

Table 56.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Piscataquis County, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	192,428	473,752	5,164,167	70,358	5,900,705
Saplings	47,860	477,537	10,685	0	536,082
Total sawtimber	240,288	951,289	5,174,852	70,358	6,436,787
Poletimber:					
Shrubs	100,262	775,951	2,472,061	76,956	3,425,230
Saplings	47,389	338,231	0	0	385,620
Total poletimber	147,651	1,114,182	2,472,061	76,956	3,810,850
Sapling/seedling:					
Shrubs	55,745	469,098	1,585,523	48,934	2,159,300
Saplings	2,127	159,094	14,812	0	176,033
Total sapling/seedling	57,872	628,192	1,600,335	48,934	2,335,333
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	445,811	2,693,663	9,247,248	196,248	12,582,970

Table 57.--Number of standing dead trees on timberland by species, condition class, and diameter class, Piscataquis County, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	13,374	387	0	13,761	14,472	527	103	15,102	28,863	12
Tamarack	147	109	0	256	284	46	0	330	586	71
White spruce	390	43	0	433	446	0	0	446	879	36
Black spruce	144	37	0	181	419	100	0	519	700	51
Red spruce	4,460	241	61	4,762	2,737	398	328	3,463	8,225	16
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	79	43	47	169	529	119	72	720	889	35
Northern white-cedar	3,375	1,442	908	5,725	2,420	783	377	3,580	9,305	17
Hemlock	86	43	0	129	172	36	32	240	369	83
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	22,055	2,345	1,016	25,416	21,479	2,009	912	24,400	49,816	9
Sugar maple	220	0	0	220	363	184	173	720	940	31
Red maple	693	37	36	766	1,624	283	32	1,939	2,705	24
Yellow birch	367	44	13	424	1,280	1,037	1,258	3,575	3,999	13
Paper birch	1,015	164	0	1,179	1,909	223	151	2,283	3,462	21
Gray birch	333	0	0	333	340	0	0	340	673	72
Beech	441	111	57	609	514	487	550	1,551	2,160	26
White ash	0	0	10	10	153	35	0	188	198	79
Black ash	146	36	0	182	552	194	37	783	965	52
Aspen	366	36	0	402	2,198	320	79	2,597	2,999	45
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	37	37	0	0	0	0	37	100
Other hardwoods	1,223	0	0	1,223	722	0	190	912	2,135	40
Total hardwoods	4,804	428	153	5,385	9,655	2,763	2,470	14,888	20,273	11
Total, all species	26,859	2,773	1,169	30,801	31,134	4,772	3,382	39,288	70,089	7
Sampling error (percent)	11	16	24	11	9	11	13	7	7	

Table 58.--Number of trees with observed cavities on timberland by species and condition class, Piscataquis County, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	1,889	527	0	0	2,416	477	2,390	2,867	5,283	19
Tamarack	0	0	0	0	0	0	248	248	248	100
White spruce	237	0	0	0	237	37	0	37	274	76
Black spruce	0	0	0	59	59	0	122	122	181	75
Red spruce	261	117	0	0	378	86	723	809	1,187	24
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	219	0	0	0	219	0	91	91	310	48
Northern white-cedar	1,383	1,468	73	346	3,270	1,143	1,259	2,402	5,672	16
Hemlock	37	9	0	0	46	0	68	68	114	54
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	4,026	2,121	73	405	6,625	1,743	4,901	6,644	13,269	12
Sugar maple	1,061	783	0	0	1,844	0	266	266	2,110	27
Red maple	1,164	1,553	0	36	2,753	73	1,094	1,167	3,920	21
Yellow birch	638	265	0	0	903	86	1,767	1,853	2,756	16
Paper birch	299	233	0	0	532	0	536	536	1,068	27
Gray birch	74	0	0	0	74	0	0	0	74	100
Beech	804	1,440	0	72	2,316	37	922	959	3,275	28
White ash	17	0	0	0	17	10	35	45	62	85
Black ash	74	0	74	0	148	0	110	110	258	77
Aspen	147	184	0	0	331	0	645	645	976	32
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	37	0	37	37	100
Other hardwoods	0	180	0	0	180	159	184	343	523	39
Total hardwoods	4,278	4,638	74	108	9,098	402	5,559	5,961	15,059	12
Total, all species	8,304	6,759	147	513	15,723	2,145	10,460	12,605	28,328	9
Sampling error (percent)	15	14	61	39		18	11		9	

Table 59.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Piscataquis County, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	196.8	252.8	78.9	.0	528.5	32	7
Eastern hemlock	36.8	27.8	2.1	.0	66.7	39	16
Striped maple	778.8	382.5	159.8	.0	1,321.1	13	3
Red maple	726.0	638.2	235.7	.0	1,599.9	13	3
Mountain maple	311.4	94.6	78.5	.0	484.5	21	3
Smooth sumac	12.9	.0	.0	.0	12.9	74	s[a]
Staghorn sumac	.0	4.3	.0	.0	4.3	100	s
Mountain ash	17.4	2.1	21.4	.0	40.9	57	s
Hobblebush viburnum	581.2	90.0	44.7	.0	715.9	24	s
Total readily browsed	2,661.3	1,492.3	621.1	.0	4,774.7	8	
Balsam fir	1,860.3	1,051.2	1,044.0	.0	3,955.5	9	9
White pine	21.1	6.4	14.5	.0	42.0	33	15
Sugar maple	1,666.8	424.4	66.5	.0	2,157.7	21	1
Shadbush	4.3	2.1	.0	.0	6.4	58	s
Yellow birch	614.4	142.8	102.5	.0	859.7	15	7
Paper birch	62.6	57.6	333.6	.0	453.8	28	16
Red-osier dogwood	32.5	87.3	37.1	.0	156.9	45	s
American hazelnut	107.4	57.9	53.6	.0	218.9	35	s
Beaked hazelnut	85.1	42.3	2.1	.0	129.5	41	s
Beech	375.3	186.4	47.6	.0	609.3	17	16
White ash	36.3	198.7	27.7	.0	262.7	43	3
Black ash	98.9	18.9	2.1	.0	119.9	32	7
Winterberry	.0	4.3	4.2	.0	8.5	70	s
Honeysuckle	148.8	66.4	15.0	.0	230.2	29	s
Balsam poplar	6.5	4.3	2.1	.0	12.9	57	0
Bigtooth aspen	.0	2.1	23.4	.0	25.5	92	0
Quaking aspen	32.4	70.4	25.2	.0	128.0	43	13
Pin cherry	64.5	63.5	53.1	.0	181.1	31	7
Black cherry	14.9	125.4	32.7	.0	173.0	41	4
Chokecherry	23.5	.0	2.1	.0	25.6	47	s
Brambles	3,906.6	2,020.7	1,147.0	.0	7,074.3	20	s
Willows	.0	8.1	27.7	.0	35.8	45	12
Red-berried elder	13.1	.0	32.2	.0	45.3	73	s
Blueberries	53.9	105.5	92.3	.0	251.7	47	s
Sweetfern	12.8	53.2	.0	.0	66.0	46	s
Maple-leaf viburnum	69.4	.0	2.1	.0	71.5	53	s
Wild raisin	.0	10.6	21.3	.0	31.9	74	s
Total commonly browsed	9,311.4	4,810.5	3,211.7	.0	17,333.6	9	

Table 59.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Tamarack	.0	2.1	6.4	.0	8.5	79	100
White spruce	59.5	19.2	4.3	.0	83.0	33	42
Black spruce	26.8	4.3	6.4	.0	37.5	35	29
Red spruce	606.4	281.7	495.8	.0	1,383.9	16	13
Speckled alder	138.8	132.1	288.0	.0	558.9	35	s
Bog Rosemary	.0	22.5	.0	.0	22.5	100	s
Gray birch	.0	6.4	.0	.0	6.4	74	33
Lambkill	22.8	106.6	.0	.0	129.4	50	s
Labrador tea	4.3	27.7	102.1	.0	134.1	79	s
Eastern hophornbeam	21.4	4.3	.0	.0	25.7	65	0
Red oak	4.3	6.8	.0	.0	11.1	59	0
Spiraea	4.3	148.9	19.1	.0	172.3	84	s
Total infrequently browsed	888.6	762.6	922.1	.0	2,573.3	15	
Red ash	10.6	.0	.0	.0	10.6	100	s
Witch-hazel	8.5	.0	38.6	.0	47.1	83	s
Rhododendron	14.9	.0	.0	.0	14.9	100	s
Gooseberries	292.4	10.6	142.8	.0	445.8	40	s
Total questionable	326.4	10.6	181.4	.0	518.4	35	
Unclassified species	421.1	440.6	138.2	.0	999.9	27	
Total all species	13,608.8	7,516.6	5,074.5	.0	26,199.9	7	
Sampling error (percent)	11	18	21	-	7		

[a]Classed as shrub species.

Table 60.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Piscataquis County, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	18.5	446.2	.0	46.8	17.0	.0	528.5
Eastern hemlock	.0	11.0	.0	.0	55.7	.0	66.7
Striped maple	32.4	467.8	10.7	.0	705.0	105.2	1,321.1
Red maple	40.7	941.6	15.0	51.1	498.0	53.5	1,599.9
Mountain maple	13.2	209.2	.0	.0	251.4	10.7	484.5
Smooth sumac	.0	.0	.0	.0	12.9	.0	12.9
Staghorn sumac	.0	4.3	.0	.0	.0	.0	4.3
Mountain ash	.0	30.2	.0	.0	10.7	.0	40.9
Hobblebush viburnum	21.3	273.0	4.3	.0	413.0	4.3	715.9
Total readily browsed	126.1	2,383.3	30.0	97.9	1,963.7	173.7	4,774.7
Balsam fir	149.7	2,502.9	.0	34.0	1,110.7	158.2	3,955.5
White pine	6.4	11.8	.0	.0	13.6	10.2	42.0
Sugar maple	203.1	377.3	32.2	.0	1,513.0	32.1	2,157.7
Shadbush	.0	2.1	.0	.0	4.3	.0	6.4
Yellow birch	17.1	412.2	2.2	.0	419.6	8.6	859.7
Paper birch	11.0	300.2	.0	.0	72.1	70.5	453.8
Red-osier dogwood	12.8	102.7	.0	.0	17.0	24.4	156.9
American hazelnut	25.5	71.1	.0	.0	96.5	25.8	218.9
Beaked hazelnut	.0	71.0	.0	.0	56.4	2.1	129.5
Beech	30.0	64.9	2.1	.0	465.2	47.1	609.3
White ash	153.4	25.6	2.2	.0	45.1	36.4	262.7
Black ash	.0	100.6	.0	4.3	12.9	2.1	119.9
Winterberry	.0	4.2	.0	4.3	.0	.0	8.5
Honeysuckle	22.0	167.5	6.4	.0	12.8	21.5	230.2
Balsam poplar	.0	10.8	.0	.0	.0	2.1	12.9
Bigtooth aspen	2.1	23.4	.0	.0	.0	.0	25.5
Quaking aspen	6.4	36.4	.0	.0	4.3	80.9	128.0
Pin cherry	.0	108.7	.0	.0	30.3	42.1	181.1
Black cherry	38.4	128.2	.0	.0	4.3	2.1	173.0
Chokecherry	4.3	21.3	.0	.0	.0	.0	25.6
Brambles	45.1	4,211.2	4.3	.0	2,361.1	452.6	7,074.3
Willows	.0	27.3	.0	.0	6.4	2.1	35.8
Red-berried elder	.0	11.0	.0	.0	34.3	.0	45.3
Blueberries	2.1	146.6	.0	.0	15.0	88.0	251.7
Sweetfern	.0	36.2	.0	.0	29.8	.0	66.0
Maple-leaf viburnum	.0	26.4	.0	.0	45.1	.0	71.5
Wild raisin	.0	31.9	.0	.0	.0	.0	31.9
Total commonly browsed	729.4	9,033.5	49.4	42.6	6,369.8	1,108.9	17,333.6

Table 60.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Tamarack	2.1	6.4	.0	.0	.0	.0	8.5
White spruce	8.5	61.6	.0	.0	12.9	.0	83.0
Black spruce	.0	33.2	.0	.0	4.3	.0	37.5
Red spruce	22.4	1,087.1	2.2	.0	257.2	15.0	1,383.9
Speckled alder	.0	492.8	.0	.0	17.1	49.0	558.9
Bog Rosemary	.0	22.5	.0	.0	.0	.0	22.5
Gray birch	.0	4.3	.0	2.1	.0	.0	6.4
Lambkill	.0	76.2	.0	.0	53.2	.0	129.4
Labrador tea	.0	106.4	.0	.0	27.7	.0	134.1
Eastern hophornbeam	6.4	.0	.0	.0	19.3	.0	25.7
Red oak	4.3	.0	4.3	.0	2.5	.0	11.1
Spiraea	.0	172.3	.0	.0	.0	.0	172.3
Total infrequently browsed	43.7	2,062.8	6.5	2.1	394.2	64.0	2,573.3
Red ash	.0	.0	.0	.0	10.6	.0	10.6
Witch-hazel	.0	45.0	2.1	.0	.0	.0	47.1
Rhododendron	14.9	.0	.0	.0	.0	.0	14.9
Gooseberries	.0	304.2	.0	.0	128.8	12.8	445.8
Total questionable	14.9	349.2	2.1	.0	139.4	12.8	518.4
Unclassified species	42.9	733.0	.0	48.9	130.4	44.7	999.9
Total all species	957.0	14,561.8	88.0	191.5	8,997.5	1,404.1	26,199.9
Sampling error (percent)	38	11	100	100	16	39	7

Table 61.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Piscataquis County, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	522.1	4.3	2.1	.0	528.5
Eastern hemlock	49.7	17.0	.0	.0	66.7
Striped maple	739.5	495.7	79.4	6.5	1,321.1
Red maple	951.5	453.7	171.2	23.5	1,599.9
Mountain maple	302.9	162.4	19.2	.0	484.5
Smooth sumac	12.9	.0	.0	.0	12.9
Staghorn sumac	4.3	.0	.0	.0	4.3
Mountain ash	21.7	2.1	12.8	4.3	40.9
Hobblebush viburnum	370.4	168.5	98.2	78.8	715.9
Total readily browsed	2,975.0	1,303.7	382.9	113.1	4,774.7
Balsam fir	3,427.5	464.8	58.2	5.0	3,955.5
White pine	39.9	.0	.0	2.1	42.0
Sugar maple	1,389.7	727.0	41.0	.0	2,157.7
Shadbush	4.3	.0	2.1	.0	6.4
Yellow birch	592.4	229.3	33.8	4.2	859.7
Paper birch	376.8	62.0	15.0	.0	453.8
Red-osier dogwood	52.0	4.3	100.6	.0	156.9
American hazelnut	87.9	117.8	13.2	.0	218.9
Beaked hazelnut	123.1	.0	.0	6.4	129.5
Beech	373.5	169.3	64.3	2.2	609.3
White ash	171.0	74.6	10.7	6.4	262.7
Black ash	81.3	34.3	.0	4.3	119.9
Winterberry	.0	4.2	4.3	.0	8.5
Honeysuckle	178.8	45.0	6.4	.0	230.2
Balsam poplar	12.9	.0	.0	.0	12.9
Bigtooth aspen	25.5	.0	.0	.0	25.5
Quaking aspen	85.3	40.6	.0	2.1	128.0
Pin cherry	123.3	27.9	23.8	6.1	181.1
Black cherry	69.2	86.7	10.7	6.4	173.0
Chokecherry	17.0	2.1	6.5	.0	25.6
Brambles	6,827.4	242.6	.0	4.3	7,074.3
Willows	25.4	.0	.0	10.4	35.8
Red-berried elder	36.4	.0	8.9	.0	45.3
Blueberries	137.9	92.3	21.5	.0	251.7
Sweetfern	34.1	27.6	4.3	.0	66.0
Maple-leaf viburnum	23.6	40.8	.0	7.1	71.5
Wild raisin	29.8	2.1	.0	.0	31.9
Total commonly browsed	14,346.0	2,495.3	425.3	67.0	17,333.6

Table 61.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	8.5	.0	.0	.0	8.5
White spruce	83.0	.0	.0	.0	83.0
Black spruce	37.5	.0	.0	.0	37.5
Red spruce	1,306.5	60.2	17.2	.0	1,383.9
Speckled alder	516.3	42.6	.0	.0	558.9
Bog Rosemary	10.0	.0	12.5	.0	22.5
Gray birch	6.4	.0	.0	.0	6.4
Lambkill	129.4	.0	.0	.0	129.4
Labrador tea	134.1	.0	.0	.0	134.1
Eastern hophornbeam	17.2	6.4	.0	2.1	25.7
Red oak	11.1	.0	.0	.0	11.1
Spiraea	134.0	38.3	.0	.0	172.3
Total infrequently browsed	2,394.0	147.5	29.7	2.1	2,573.3
Red ash	10.6	.0	.0	.0	10.6
Witch-hazel	47.1	.0	.0	.0	47.1
Rhododendron	14.9	.0	.0	.0	14.9
Gooseberries	441.6	4.2	.0	.0	445.8
Total questionable	514.2	4.2	.0	.0	518.4
Other species	652.2	296.8	16.7	34.2	999.9
Total all species	20,881.4	4,247.5	854.6	216.4	26,199.9
Sampling error (percent)	8	12	19	51	7

Table 62.--Area of timberland by forest type, forest-type group, and stand-size class, Somerset County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	10.4	.0	.0	.0	10.4
White pine	41.4	20.7	10.3	.0	72.4
White pine/hemlock	20.7	10.3	.0	.0	31.0
Hemlock	10.3	41.4	10.4	.0	62.1
White/red pine group	82.8	72.4	20.7	.0	175.9
Balsam fir	83.1	72.7	31.1	.0	186.9
Red spruce	93.1	83.4	.0	.0	176.5
Red spruce/balsam fir	333.2	217.6	82.7	.0	633.5
Black spruce	.0	51.8	.0	.0	51.8
Northern white-cedar	145.2	51.7	10.3	.0	207.2
Spruce/fir group	654.6	477.2	124.1	.0	1,255.9
Northern red oak	.0	10.4	.0	.0	10.4
Oak/hickory group	.0	10.4	.0	.0	10.4
Black ash/Amer. elm/red maple	.0	10.3	.0	.0	10.3
Willow	10.4	.0	.0	.0	10.4
Elm/ash/red maple group	10.4	10.3	.0	.0	20.7
Sugar maple/beech/yellow birch	425.9	124.5	20.7	.0	571.1
Red maple/northern hardwoods	31.1	41.4	20.7	.0	93.2
Pin cherry/reverting field	.0	.0	20.7	.0	20.7
Mixed northern hardwoods	20.7	31.0	10.4	.0	62.1
Northern hardwoods group	477.7	196.9	72.5	.0	747.1
Aspen	21.0	31.1	20.7	.0	72.8
Paper birch	10.3	41.4	.0	.0	51.7
Aspen/birch group	31.3	72.5	20.7	.0	124.5
All forest types	1,256.8	839.7	238.0	.0	2,334.5

Table 63.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Somerset County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	8,952	5,293	3,534	2,104	965	516	337	0	79	0	21,780	19
Butternut	0	72	0	55	0	0	0	0	0	0	127	100
Apple	0	240	0	0	0	0	0	0	0	0	240	100
Eastern hophornbeam	1,157	519	0	0	0	0	0	0	0	0	1,676	40
Pin cherry	1,157	289	0	0	0	0	0	0	0	0	1,446	38
Black cherry	559	162	0	0	0	0	0	0	0	0	721	59
Northern red oak	440	72	238	0	42	0	0	0	48	0	840	65
Total, all species	12,265	6,647	3,772	2,159	1,007	516	337	0	127	0	26,830	17
Sampling error (percent)	19	19	25	24	25	30	46	-	51	-	17	

Table 64.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Somerset County, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	353,197	428,141	3,521,917	137,147	4,440,402
Saplings	39,979	518,510	10,569	2,100	571,158
Total sawtimber	393,176	946,651	3,532,486	139,247	5,011,560
Poletimber:					
Shrubs	142,940	874,060	2,528,401	98,730	3,644,131
Saplings	27,306	536,222	10,490	8,409	582,427
Total poletimber	170,246	1,410,282	2,538,891	107,139	4,226,558
Sapling/seedling:					
Shrubs	2,107	298,159	2,419,939	67,255	2,787,460
Saplings	0	111,390	33,629	0	145,019
Total sapling/seedling	2,107	409,549	2,453,568	67,255	2,932,479
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	565,529	2,766,482	8,524,945	313,641	12,170,597

Table 65.--Number of standing dead trees on timberland by species, condition class, and diameter class, Somerset County, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	12,509	642	0	13,151	10,004	1,224	20	11,248	24,399	11
Tamarack	288	36	0	324	108	0	0	108	432	100
White spruce	218	0	0	218	72	36	0	108	326	55
Black spruce	642	0	0	642	108	0	0	108	750	44
Red spruce	2,319	215	25	2,559	1,683	329	36	2,048	4,607	20
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	180	0	36	216	324	72	118	514	730	39
Northern white-cedar	2,666	729	111	3,506	2,059	571	168	2,798	6,304	22
Hemlock	144	36	0	180	0	75	51	126	306	47
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	18,966	1,658	172	20,796	14,358	2,307	393	17,058	37,854	9
Sugar maple	535	0	0	535	467	270	273	1,010	1,545	38
Red maple	889	72	0	961	1,399	284	36	1,719	2,680	29
Yellow birch	354	87	138	579	1,657	881	1,586	4,124	4,703	16
Paper birch	274	50	0	324	3,171	674	258	4,103	4,427	16
Gray birch	144	0	0	144	216	0	0	216	360	44
Beech	761	181	83	1,025	869	382	285	1,536	2,561	29
White ash	72	0	0	72	0	95	87	182	254	55
Black ash	72	0	0	72	290	0	0	290	362	60
Aspen	974	77	0	1,051	989	158	0	1,147	2,198	39
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	502	110	36	648	0	0	0	0	648	63
Other hardwoods	912	0	0	912	1,079	0	151	1,230	2,142	33
Total hardwoods	5,489	577	257	6,323	10,137	2,744	2,676	15,557	21,880	9
Total, all species	24,455	2,235	429	27,119	24,495	5,051	3,069	32,615	59,734	7
Sampling error (percent)	11	15	30	10	8	11	11	7	7	

Table 66.--Number of trees with observed cavities on timberland by species and condition class, Somerset County, Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	771	531	0	144	1,446	884	1,607	2,491	3,937	18
Tamarack	36	0	0	0	36	0	0	0	36	100
White spruce	36	0	0	0	36	72	0	72	108	74
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	238	141	0	0	379	61	180	241	620	25
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	36	0	0	0	36	36	51	87	123	49
Northern white-cedar	546	925	0	70	1,541	884	766	1,650	3,191	17
Hemlock	36	22	0	0	58	0	72	72	130	51
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	1,699	1,619	0	214	3,532	1,937	2,676	4,613	8,145	12
Sugar maple	1,099	835	72	0	2,006	66	414	480	2,486	20
Red maple	412	700	0	0	1,112	0	431	431	1,543	22
Yellow birch	389	740	0	15	1,144	144	2,228	2,372	3,516	14
Paper birch	72	410	0	0	482	0	1,598	1,598	2,080	24
Gray birch	0	0	0	0	0	0	0	0	0	0
Beech	108	752	55	75	990	108	513	621	1,611	24
White ash	0	0	0	0	0	0	110	110	110	100
Black ash	0	0	0	0	0	0	72	72	72	100
Aspen	171	72	0	0	243	72	283	355	598	36
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	36	0	0	0	36	0	0	0	36	100
Basswood	36	0	0	0	36	0	0	0	36	100
Elm	0	0	0	0	0	100	0	100	100	100
Other hardwoods	72	216	0	0	288	0	368	368	656	39
Total hardwoods	2,395	3,725	127	90	6,337	490	6,017	6,507	12,844	9
Total, all species	4,094	5,344	127	304	9,869	2,427	8,693	11,120	20,989	8
Sampling error (percent)	14	15	58	56		20	10		8	

Table 67.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Somerset County, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	151.3	98.8	63.0	.0	313.1	27	9
Eastern hemlock	37.8	12.6	4.2	.0	54.6	37	15
Striped maple	800.1	208.1	23.1	.0	1,031.3	15	5
Red maple	798.0	549.2	176.6	.0	1,523.8	12	10
Mountain maple	711.9	203.9	12.6	.0	928.4	16	5
Apple	.0	.0	2.1	.0	2.1	100	0
Smooth sumac	6.3	2.1	.0	.0	8.4	61	s[a]
Staghorn sumac	2.1	.0	.0	.0	2.1	100	s
Mountain ash	2.2	.0	.0	.0	2.2	100	s
Hobblebush viburnum	835.3	140.9	14.7	.0	990.9	18	s
Total readily browsed	3,345.0	1,215.6	296.3	.0	4,856.9	7	
Balsam fir	1,396.5	1,442.5	357.1	.0	3,196.1	12	14
White pine	14.7	21.0	.0	.0	35.7	36	35
Sugar maple	1,381.9	382.4	77.7	.0	1,842.0	15	3
Shadbush	.0	8.4	.0	.0	8.4	61	s
Yellow birch	400.0	168.1	33.7	.0	601.8	16	14
Paper birch	302.9	174.7	163.9	.0	641.5	17	9
Red-osier dogwood	.0	21.0	46.4	.0	67.4	69	s
American hazelnut	132.3	79.9	.0	.0	212.2	38	s
Beaked hazelnut	220.9	63.0	2.1	.0	286.0	37	s
Beech	299.6	155.5	8.4	.0	463.5	21	12
White ash	48.4	71.5	16.8	.0	136.7	29	6
Black ash	10.5	37.8	4.2	.0	52.5	34	36
Winterberry	.0	4.2	.0	.0	4.2	100	s
Honeysuckle	78.3	145.0	2.1	.0	225.4	32	s
Mountain holly	.0	29.4	.0	.0	29.4	100	s
Balsam poplar	14.7	.0	19.0	.0	33.7	63	6
Bigtooth aspen	2.2	12.6	.0	.0	14.8	87	0
Quaking aspen	79.3	56.7	71.4	.0	207.4	32	4
Pin cherry	82.0	27.3	98.9	.0	208.2	33	12
Black cherry	31.5	8.4	.0	.0	39.9	62	11
Chokecherry	14.7	2.1	23.1	.0	39.9	55	s
Brambles	2,195.8	1,739.4	2,201.3	.0	6,136.5	19	s
Willows	.0	.0	6.3	.0	6.3	75	0

Table 67.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Red-berried elder	4.3	14.9	2.1	.0	21.3	47	s
American elm	2.1	14.7	.0	.0	16.8	58	25
Blueberries	18.9	128.2	12.6	.0	159.7	37	s
Sweetfern	27.3	29.4	.0	.0	56.7	56	s
Maple-leaf viburnum	2.1	63.4	.0	.0	65.5	77	s
Wild raisin	6.3	79.9	6.3	.0	92.5	46	s
Total commonly browsed	6,767.2	4,981.4	3,153.4	.0	14,902.0	9	
Tamarack	.0	2.1	.0	.0	2.1	100	100
White spruce	29.4	16.8	12.6	.0	58.8	30	43
Black spruce	10.6	140.8	4.2	.0	155.6	41	11
Red spruce	462.9	286.0	111.3	.0	860.2	15	17
Speckled alder	245.2	478.9	23.1	.0	747.2	26	s
Black chokecherry	8.4	.0	.0	.0	8.4	100	s
Gray birch	2.1	6.3	.0	.0	8.4	50	75
Lambkill	155.5	178.7	98.6	.0	432.8	47	s
Labrador tea	.0	124.0	.0	.0	124.0	82	s
Eastern hophornbeam	4.2	10.5	.0	.0	14.7	55	57
Red oak	4.3	.0	25.2	.0	29.5	86	0
Spiraea	4.2	.0	41.9	.0	46.1	91	s
Total infrequently browsed	926.8	1,244.1	316.9	.0	2,487.8	16	
Witch-hazel	2.1	8.4	.0	.0	10.5	66	s
Gooseberries	263.2	35.9	132.4	.0	431.5	30	s
Total questionable	265.3	44.3	132.4	.0	442.0	29	
Unclassified species	259.4	397.1	357.1	.0	1,013.6	21	
Total all species	11,563.7	7,882.5	4,256.1	.0	23,702.3	6	
Sampling error (percent)	10	14	24	-	6		

[a]Classed as shrub species.

Table 68.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Somerset County, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	2.1	218.5	.0	.0	92.5	.0	313.1
Eastern hemlock	23.1	2.1	2.1	.0	21.0	6.3	54.6
Striped maple	18.9	379.5	.0	.0	511.1	121.8	1,031.3
Red maple	60.9	875.4	6.3	2.1	517.8	61.3	1,523.8
Mountain maple	2.1	470.9	.0	.0	386.8	68.6	928.4
Apple	.0	.0	.0	.0	.0	2.1	2.1
Smooth sumac	.0	8.4	.0	.0	.0	.0	8.4
Staghorn sumac	.0	2.1	.0	.0	.0	.0	2.1
Mountain ash	.0	2.2	.0	.0	.0	.0	2.2
Hobblebush viburnum	.0	196.5	.0	4.2	790.2	.0	990.9
Total readily browsed	107.1	2,155.6	8.4	6.3	2,319.4	260.1	4,856.9
Balsam fir	243.6	2,376.4	.0	6.3	422.7	147.1	3,196.1
White pine	14.7	18.9	.0	.0	.0	2.1	35.7
Sugar maple	56.8	344.9	.0	6.3	1,402.3	31.7	1,842.0
Shadbush	.0	6.3	.0	.0	2.1	.0	8.4
Yellow birch	.0	303.3	.0	.0	296.4	2.1	601.8
Paper birch	.0	481.8	2.2	.0	126.0	31.5	641.5
Red-osier dogwood	.0	6.3	.0	.0	44.2	16.9	67.4
American hazelnut	12.6	12.6	8.4	.0	107.1	71.5	212.2
Beaked hazelnut	.0	218.8	.0	2.1	63.0	2.1	286.0
Beech	31.5	25.5	.0	.0	387.6	18.9	463.5
White ash	25.2	6.5	.0	2.1	73.5	29.4	136.7
Black ash	2.1	35.7	.0	4.2	8.4	2.1	52.5
Winterberry	.0	4.2	.0	.0	.0	.0	4.2
Honeysuckle	4.2	174.7	2.1	.0	44.4	.0	225.4
Mountain holly	.0	29.4	.0	.0	.0	.0	29.4
Balsam poplar	.0	12.6	.0	.0	21.1	.0	33.7
Bigtooth aspen	.0	.0	.0	.0	14.8	.0	14.8
Quaking aspen	14.7	77.7	.0	4.2	29.7	81.1	207.4
Pin cherry	50.4	37.9	2.1	.0	117.8	.0	208.2
Black cherry	.0	27.3	.0	6.3	.0	6.3	39.9
Chokecherry	12.6	8.4	.0	.0	16.8	2.1	39.9
Brambles	264.6	2,553.2	.0	79.9	3,117.9	120.9	6,136.5
Willows	.0	4.2	.0	.0	.0	2.1	6.3

Table 68.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Red-berried elder	.0	10.7	.0	.0	8.5	2.1	21.3
American elm	2.1	4.2	.0	2.1	.0	8.4	16.8
Blueberries	12.6	119.8	.0	.0	25.2	2.1	159.7
Sweetfern	.0	29.4	.0	.0	.0	27.3	56.7
Maple-leaf viburnum	.0	15.1	.0	.0	50.4	.0	65.5
Wild raisin	6.3	79.9	.0	.0	.0	6.3	92.5
Total commonly browsed	754.0	7,025.7	14.8	113.5	6,379.9	614.1	14,902.0
Tamarack	.0	2.1	.0	.0	.0	.0	2.1
White spruce	.0	50.4	.0	.0	8.4	.0	58.8
Black spruce	.0	151.4	.0	.0	4.2	.0	155.6
Red spruce	6.3	744.6	.0	.0	98.8	10.5	860.2
Speckled alder	.0	646.4	.0	21.0	14.7	65.1	747.2
Black chokecherry	.0	8.4	.0	.0	.0	.0	8.4
Gray birch	2.1	.0	.0	.0	6.3	.0	8.4
Lambkill	254.2	178.6	.0	.0	.0	.0	432.8
Labrador tea	.0	124.0	.0	.0	.0	.0	124.0
Eastern hophornbeam	6.3	.0	.0	.0	8.4	.0	14.7
Red oak	25.2	.0	.0	.0	4.3	.0	29.5
Spiraea	44.0	.0	.0	.0	2.1	.0	46.1
Total infrequently browsed	338.1	1,905.9	.0	21.0	147.2	75.6	2,487.8
Witch-hazel	.0	2.1	2.1	.0	.0	6.3	10.5
Gooseberries	.0	246.0	.0	.0	170.7	14.8	431.5
Total questionable	.0	248.1	2.1	.0	170.7	21.1	442.0
Unclassified species	100.7	574.2	.0	4.3	267.1	67.3	1,013.6
Total all species	1,299.9	11,909.5	25.3	145.1	9,284.3	1,038.2	23,702.3
Sampling error (percent)	34	10	100	81	15	32	6

Table 69.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Somerset County, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	302.6	2.1	8.4	.0	313.1
Eastern hemlock	52.5	2.1	.0	.0	54.6
Striped maple	725.9	202.5	81.9	21.0	1,031.3
Red maple	1,059.4	250.7	162.3	51.4	1,523.8
Mountain maple	694.0	202.9	14.7	16.8	928.4
Apple	2.1	.0	.0	.0	2.1
Smooth sumac	8.4	.0	.0	.0	8.4
Staghorn sumac	2.1	.0	.0	.0	2.1
Mountain ash	2.2	.0	.0	.0	2.2
Hobblebush viburnum	925.7	56.7	8.5	.0	990.9
Total readily browsed	3,774.9	717.0	275.8	89.2	4,856.9
Balsam fir	2,941.6	218.8	35.7	.0	3,196.1
White pine	33.6	.0	2.1	.0	35.7
Sugar maple	1,312.0	299.4	228.5	2.1	1,842.0
Shadbush	4.2	.0	2.1	2.1	8.4
Yellow birch	449.6	118.5	29.5	4.2	601.8
Paper birch	475.5	88.3	73.5	4.2	641.5
Red-osier dogwood	52.7	.0	14.7	.0	67.4
American hazelnut	138.7	69.3	4.2	.0	212.2
Beaked hazelnut	227.1	58.9	.0	.0	286.0
Beech	378.4	64.1	12.6	8.4	463.5
White ash	33.6	58.9	29.4	14.8	136.7
Black ash	48.3	.0	4.2	.0	52.5
Winterberry	4.2	.0	.0	.0	4.2
Honeysuckle	189.7	25.2	8.4	2.1	225.4
Mountain holly	29.4	.0	.0	.0	29.4
Balsam poplar	33.7	.0	.0	.0	33.7
Bigtooth aspen	14.8	.0	.0	.0	14.8
Quaking aspen	186.4	8.4	12.6	.0	207.4
Pin cherry	193.4	4.3	10.5	.0	208.2
Black cherry	39.9	.0	.0	.0	39.9
Chokecherry	21.0	2.1	16.8	.0	39.9
Brambles	5,833.9	302.6	.0	.0	6,136.5
Willows	6.3	.0	.0	.0	6.3
Red-berried elder	19.2	2.1	.0	.0	21.3
American elm	16.8	.0	.0	.0	16.8
Blueberries	140.8	18.9	.0	.0	159.7
Sweetfern	39.9	.0	16.8	.0	56.7
Maple-leaf viburnum	42.4	.0	23.1	.0	65.5
Wild raisin	82.0	10.5	.0	.0	92.5
Total commonly browsed	12,989.1	1,350.3	524.7	37.9	14,902.0

Table 69.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	2.1	.0	.0	.0	2.1
White spruce	58.8	.0	.0	.0	58.8
Black spruce	155.6	.0	.0	.0	155.6
Red spruce	793.1	48.3	8.4	10.4	860.2
Speckled alder	698.9	44.1	4.2	.0	747.2
Black chokecherry	8.4	.0	.0	.0	8.4
Gray birch	6.3	2.1	.0	.0	8.4
Lambkill	428.6	4.2	.0	.0	432.8
Labrador tea	124.0	.0	.0	.0	124.0
Eastern hophornbeam	14.7	.0	.0	.0	14.7
Red oak	25.2	.0	4.3	.0	29.5
Spiraea	25.1	21.0	.0	.0	46.1
Total infrequently browsed	2,340.8	119.7	16.9	10.4	2,487.8
Witch-hazel	4.2	6.3	.0	.0	10.5
Gooseberries	431.5	.0	.0	.0	431.5
Total questionable	435.7	6.3	.0	.0	442.0
Unclassified species	868.5	98.9	39.9	6.3	1,013.6
Total all species	20,409.0	2,292.2	857.3	143.8	23,702.3
Sampling error (percent)	7	12	17	35	6

Table 70.--Area of timberland by forest type, forest-type group, and stand-size class, Washington County, Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine/hemlock	21.1	10.6	.0	.0	31.7
Hemlock	52.7	10.6	.0	.0	63.3
White/red pine group	73.8	21.2	.0	.0	95.0
Balsam fir	21.9	52.8	43.7	.0	118.4
Red spruce	73.8	84.2	.0	.0	158.0
Red spruce/balsam fir	137.3	158.2	31.9	.0	327.4
White spruce	10.5	10.6	.0	.0	21.1
Black spruce	.0	31.7	11.0	.0	42.7
Northern white-cedar	73.9	42.2	10.5	.0	126.6
Tamarack	.0	10.5	.0	.0	10.5
Spruce/fir group	317.4	390.2	97.1	.0	804.7
Northern red oak	.0	10.6	.0	.0	10.6
Red maple/central hardwoods	.0	.0	11.0	.0	11.0
Oak/hickory group	.0	10.6	11.0	.0	21.6
Black ash/Amer. elm/red maple	.0	21.1	.0	.0	21.1
Willow	.0	.0	11.0	.0	11.0
Elm/ash/red maple group	.0	21.1	11.0	.0	32.1
Sugar maple/beech/yellow birch	84.4	42.4	31.6	.0	158.4
Red maple/northern hardwoods	21.0	85.5	32.6	.0	139.1
Mixed northern hardwoods	10.5	10.5	.0	.0	21.0
Northern hardwoods group	115.9	138.4	64.2	.0	318.5
Aspen	42.2	21.6	64.7	.0	128.5
Paper birch	.0	10.5	10.6	.0	21.1
Gray birch	.0	.0	32.7	.0	32.7
Aspen/birch group	42.2	32.1	108.0	.0	182.3
All forest types	549.3	613.6	291.3	.0	1,454.2

Table 71.--Number of all live nut and fruit producing trees on timberland by species and diameter class, Washington County, Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	4,344	1,968	961	481	464	151	80	38	0	0	8,487	32
Eastern hophornbeam	226	212	0	0	0	0	0	0	0	0	438	58
Northern red oak	230	508	394	162	0	0	0	0	0	0	1,294	86
Total, all species	4,800	2,688	1,355	643	464	151	80	38	0	0	10,219	28
Sampling error (percent)	30	32	41	41	42	60	59	100	-	-	28	

Table 72.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Washington County, Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	0	529,122	666,942	136,492	1,332,556
Saplings	46,227	371,798	0	0	418,025
Total sawtimber	46,227	900,920	666,942	136,492	1,750,581
Poletimber:					
Shrubs	37,500	1,914,698	1,382,027	180,276	3,514,501
Saplings	48,504	458,206	2,298	0	509,008
Total poletimber	86,004	2,372,904	1,384,325	180,276	4,023,509
Sapling/seedling:					
Shrubs	6,895	4,413,796	3,575,856	585,635	8,582,182
Saplings	2,194	233,511	2,298	0	238,003
Total sapling/seedling	9,089	4,647,307	3,578,154	585,635	8,820,185
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	141,320	7,921,131	5,629,421	902,403	14,594,275

Table 73.--Number of standing dead trees on timberland by species, condition class, and diameter class, Washington County, Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.1-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	10,463	116	38	10,617	18,283	435	38	18,756	29,373	15
Tamarack	0	0	0	0	0	0	37	37	37	100
White Spruce	162	0	0	162	0	0	0	0	162	100
Black Spruce	75	0	0	75	452	0	0	452	527	74
Red Spruce	1,754	93	0	1,847	2,347	344	75	2,766	4,613	20
Red pine	0	0	0	0	0	0	0	0	0	0
White Pine	112	75	65	252	573	302	28	903	1,155	35
Northern white-cedar	2,624	528	0	3,152	1,442	179	0	1,621	4,773	30
Hemlock	226	0	0	226	768	0	0	768	994	
Other softwoods	0	0	0	0	0	0	0	0	0	
Total softwoods	15,416	812	103	16,331	23,865	1,260	178	25,303	41,634	12
Sugar maple	0	38	0	38	245	0	38	283	321	78
Red maple	834	0	0	83	1,820	239	0	2,059	2,893	26
Yellow birch	254	37	0	291	301	159	133	593	884	28
Paper birch	1,157	0	37	1,194	1,706	148	75	1,929	3,123	30
Gray birch	150	0	0	150	681	0	0	681	831	45
Beech	1,019	0	68	1,087	1,892	388	281	2,561	3,648	32
White ash	0	0	0	0	75	0	0	75	75	100
Black ash	370	99	0	469	462	83	0	545	1,014	63
Aspen	774	0	0	774	1,708	75	0	1,783	2,557	36
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	157	0	0	157	157	100
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods	75	0	0	75	152	0	0	152	227	57
Total hardwoods	4,633	174	105	4,912	9,199	1,092	527	10,818	15,730	13
Total, all species	20,049	986	208	21,243	33,064	2,352	705	36,121	57,364	9
Sampling error (percent)	15	24	47	14	10	16	29	9	9	

Table 74.--Number of trees with observed cavities on timberland by species and condition class, Washington County, Maine, 1982

Species	Live cull					Dead				
	Live No cull	Tree condition class			Total live	Tree condition class		Total dead	Total all trees	Sampling error
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	38	316	0	0	354	786	977	1,763	2,117	20
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	76	0	76	76	100
Black spruce	0	0	0	0	0	75	0	75	75	100
Red spruce	338	150	0	0	488	76	199	275	763	29
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	75	62	0	0	137	37	157	194	331	39
Northern white-cedar	245	842	0	75	1,162	484	357	841	2,003	23
Hemlock	122	66	0	0	188	0	75	75	263	54
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	818	1,436	0	75	2,329	1,534	1,765	3,299	5,628	13
Sugar maple	116	260	0	0	376	37	38	75	451	53
Red maple	383	943	0	0	1,326	0	339	339	1,665	22
Yellow birch	172	301	0	38	511	37	184	221	732	33
Paper birch	154	98	0	0	252	75	262	337	589	39
Gray birch	0	79	0	0	79	0	0	0	79	100
Beech	75	695	0	0	770	113	1,079	1,192	1,962	40
White ash	0	38	0	0	38	0	0	0	38	100
Black ash	0	112	0	0	112	38	237	275	387	44
Aspen	72	37	0	0	109	117	262	379	488	45
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods	0	0	0	0	0	0	0	0	0	0
Total hardwoods	972	2,563	0	38	3,573	417	2,401	2,818	6,391	17
Total, all species	1,790	3,999	0	113	5,902	1,951	4,166	6,117	12,019	11
Sampling error (percent)	19	18	-	57		22	16		11	

Table 75.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Washington County, Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	70.3	109.8	28.5	.0	208.6	28	28
Eastern hemlock	151.8	24.2	4.4	.0	180.4	32	27
Striped maple	129.5	63.8	101.4	.0	294.7	41	7
Red maple	219.9	246.0	210.6	.0	676.5	17	20
Mountain maple	.0	26.3	11.0	.0	37.3	63	0
Hobblebush viburnum	6.6	57.4	.0	.0	64.0	60	s[a]
Total readily browsed	578.1	527.5	355.9	.0	1,461.5	15	
Balsam fir	934.2	1,276.4	505.3	.0	2,715.9	12	15
Juniper	.0	.0	2.3	.0	2.3	100	s
White pine	17.6	19.7	6.7	.0	44.0	36	5
Sugar maple	83.6	72.8	26.3	.0	182.7	41	10
Shadbush	.0	11.0	9.2	.0	20.2	64	s
Yellow birch	208.7	105.3	138.2	.0	452.2	38	4
Paper birch	105.4	149.8	179.9	.0	435.1	22	10
Red-osier dogwood	.0	36.8	.0	.0	36.8	100	s
American hazelnut	.0	11.0	.0	.0	11.0	100	s
Beaked hazelnut	.0	26.5	6.9	.0	33.4	76	s
Beech	162.9	92.6	8.8	.0	264.3	31	34
White ash	11.0	8.8	4.3	.0	24.1	46	0
Black ash	13.2	32.9	.0	.0	46.1	32	29
Huckleberries	.0	11.0	.0	.0	11.0	83	s
Winterberry	.0	.0	36.8	.0	36.8	100	s
Honeysuckle	6.6	28.8	32.0	.0	67.4	45	s
Balsam poplar	2.2	2.3	20.1	.0	24.6	83	0
Bigtooth aspen	22.0	4.4	13.3	.0	39.7	34	22
Quaking aspen	33.0	266.9	137.3	.0	437.2	49	13
Pin cherry	26.3	15.4	89.3	.0	131.0	47	2
Black cherry	2.2	11.4	9.2	.0	22.8	50	10
Chokecherry	.0	.0	11.0	.0	11.0	100	s
Brambles	539.0	926.0	1,855.8	.0	3,320.8	23	s
Willows	15.4	4.4	158.7	.0	178.5	50	0
Red-berried elder	.0	.0	17.5	.0	17.5	100	s
Blueberries	11.0	141.4	1,141.2	.0	1,293.6	39	s
Sweetfern	.0	24.1	13.8	.0	37.9	60	s
Wild raisin	75.0	73.1	323.9	.0	472.0	31	s
Total commonly browsed	2,269.3	3,352.8	4,747.8	.0	10,369.9	11	

Table 75.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling erro.	Percent sapl gs
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Tamarack	.0	.0	9.0	.0	9.0	49	75
White spruce	8.8	11.0	.0	.0	19.8	45	56
Black spruce	22.0	79.4	23.0	.0	124.4	47	32
Red spruce	345.1	215.5	96.7	.0	657.3	21	18
Speckled alder	133.8	205.2	127.0	.0	466.0	40	s
Black chokecherry	.0	11.0	.0	.0	11.0	100	s
Gray birch	4.4	17.5	132.2	.0	154.1	33	35
Lambkill	65.7	980.1	1,797.9	.0	2,843.7	41	s
Labrador tea	.0	19.7	.0	.0	19.7	90	s
Eastern hophornbeam	.0	25.1	4.4	.0	29.5	73	15
Red oak	.0	2.2	2.2	.0	4.4	71	50
Spiraea	212.6	149.6	1,255.9	.0	1,618.1	38	s
Total infrequently browsed	792.4	1,716.3	3,448.3	.0	5,957.0	22	
Witch-hazel	.0	4.4	.0	.0	4.4	100	s
Gooseberries	4.4	46.2	9.2	.0	59.8	50	s
Total questionable	4.4	50.6	9.2	.0	64.2	47	
Unclassified species	279.9	771.1	1,966.4	.0	3,017.4	19	
Total all species	3,924.1	6,418.3	10,527.6	.0	20,870.0	10	
Sampling error (percent)	17	17	21	-	10		

[a]Classed as shrub species.

Table 76.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Washington County, Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	2.2	169.1	.0	37.3	.0	.0	208.6
Eastern hemlock	39.7	70.5	.0	.0	70.2	.0	180.4
Striped maple	24.3	55.4	4.4	.0	206.2	4.4	294.7
Red maple	17.6	384.8	11.1	15.6	105.6	141.8	676.5
Mountain maple	.0	26.3	.0	.0	11.0	.0	37.3
Hobblebush viburnum	.0	2.2	.0	.0	61.8	.0	64.0
Total readily browsed	83.8	708.3	15.5	52.9	454.8	146.2	1,461.5
Balsam fir	79.3	2,035.2	.0	22.3	440.6	138.5	2,715.9
Juniper	.0	2.3	.0	.0	.0	.0	2.3
White pine	.0	37.4	.0	.0	2.2	4.4	44.0
Sugar maple	.0	4.4	.0	.0	173.9	4.4	182.7
Shadbush	.0	2.2	8.8	.0	.0	9.2	20.2
Yellow birch	133.8	123.0	.0	6.6	173.4	15.4	452.2
Paper birch	.0	213.3	2.2	2.3	118.9	98.4	435.1
Red-osier dogwood	.0	.0	.0	.0	.0	36.8	36.8
American hazelnut	.0	11.0	.0	.0	.0	.0	11.0
Beaked hazelnut	.0	24.3	2.2	6.9	.0	.0	33.4
Beech	13.2	2.2	.0	2.2	233.5	13.2	264.3
White ash	8.8	4.4	.0	.0	10.9	.0	24.1
Black ash	2.2	30.8	.0	6.5	4.4	2.2	46.1
Huckleberries	.0	2.2	.0	.0	8.8	.0	11.0
Winterberry	.0	.0	.0	.0	36.8	.0	36.8
Honeysuckle	.0	26.4	.0	.0	36.6	4.4	67.4
Balsam poplar	.0	2.2	.0	.0	2.3	20.1	24.6
Bigtooth aspen	4.4	6.6	.0	.0	6.6	22.1	39.7
Quaking aspen	4.4	61.6	2.3	2.3	224.7	141.9	437.2
Pin cherry	.0	13.3	9.2	.0	101.6	6.9	131.0
Black cherry	.0	2.2	.0	6.9	2.3	11.4	22.8
Chokecherry	.0	11.0	.0	.0	.0	.0	11.0
Brambles	81.2	1,483.8	23.0	401.5	1,175.0	156.3	3,320.8
Willows	15.4	.0	75.8	2.3	15.4	69.6	178.5
Red-berried elder	.0	.0	.0	.0	17.5	.0	17.5
Blueberries	2.2	463.0	86.6	.0	46.6	695.2	1,293.6
Sweetfern	.0	19.7	13.8	.0	4.4	.0	37.9
Wild raisin	.0	179.0	.0	.0	83.9	209.1	472.0
Total commonly browsed	344.9	4,761.5	223.9	459.8	2,920.3	1,659.5	10,369.9

Table 76.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group						All groups
	White/ red pine	Spruce/ fir	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Tamarack	.0	4.5	.0	.0	2.3	2.2	9.0
White spruce	.0	11.0	.0	.0	6.6	2.2	19.8
Black spruce	.0	122.2	.0	2.2	.0	.0	124.4
Red spruce	48.4	514.2	.0	2.2	64.0	28.5	657.3
Speckled alder	.0	149.6	.0	143.7	32.0	140.7	466.0
Black chokecherry	.0	.0	.0	11.0	.0	.0	11.0
Gray birch	.0	19.9	18.4	6.9	28.5	80.4	154.1
Lambkill	.0	587.7	158.3	.0	769.0	1,328.7	2,843.7
Labrador tea	.0	19.7	.0	.0	.0	.0	19.7
Eastern hophornbeam	.0	.0	.0	.0	29.5	.0	29.5
Red oak	.0	.0	.0	.0	2.2	2.2	4.4
Spiraea	.0	689.2	23.0	.0	289.6	616.3	1,618.1
Total infrequently browse	48.4	2,118.0	199.7	166.0	1,223.7	2,201.2	5,957.0
Witch-hazel	.0	.0	.0	.0	4.4	.0	4.4
Gooseberries	.0	39.6	.0	.0	15.8	4.4	59.8
Total questionable	.0	39.6	.0	.0	20.2	4.4	64.2
Unclassified species	52.9	1,126.0	356.2	22.1	371.0	1,089.2	3,017.4
Total all species	530.0	8,753.4	795.3	700.8	4,990.0	5,100.5	20,870.0
Sampling error (percent)	52	14	94	63	26	36	10

Table 77.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Washington County, Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	204.2	.0	4.4	.0	208.6
Eastern hemlock	162.8	15.3	2.3	.0	180.4
Striped maple	200.2	94.5	.0	.0	294.7
Red maple	465.0	138.7	59.6	13.2	676.5
Mountain maple	30.7	6.6	.0	.0	37.3
Hobblebush viburnum	59.6	4.4	.0	.0	64.0
Total readily browsed	1,122.5	259.5	66.3	13.2	1,461.5
Balsam fir	2,583.2	90.1	26.5	16.1	2,715.9
Juniper	2.3	.0	.0	.0	2.3
White pine	41.8	2.2	.0	.0	44.0
Sugar maple	162.9	11.0	.0	8.8	182.7
Shadbush	20.2	.0	.0	.0	20.2
Yellow birch	186.8	250.1	15.3	.0	452.2
Paper birch	222.2	149.3	50.4	13.2	435.1
Red-osier dogwood	36.8	.0	.0	.0	36.8
American hazelnut	11.0	.0	.0	.0	11.0
Beaked hazelnut	24.3	9.1	.0	.0	33.4
Beech	211.5	50.6	.0	2.2	264.3
White ash	21.9	2.2	.0	.0	24.1
Black ash	43.9	2.2	.0	.0	46.1
Huckleberries	11.0	.0	.0	.0	11.0
Winterberry	36.8	.0	.0	.0	36.8
Honeysuckle	58.6	2.2	4.4	2.2	67.4
Balsam poplar	22.5	2.1	.0	.0	24.6
Bigtooth aspen	28.7	6.6	4.4	.0	39.7
Quaking aspen	395.4	35.2	6.6	.0	437.2
Pin cherry	60.8	13.2	57.0	.0	131.0
Black cherry	13.7	2.2	6.9	.0	22.8
Chokecherry	.0	4.4	.0	6.6	11.0
Brambles	2,155.9	764.0	217.0	183.9	3,320.8
Willows	137.3	34.5	6.7	.0	178.5
Red-berried elder	17.5	.0	.0	.0	17.5
Blueberries	736.1	85.9	458.5	13.1	1,293.6
Sweetfern	33.5	.0	4.4	.0	37.9
Wild raisin	209.1	249.7	.0	13.2	472.0
Total commonly browsed	7,485.7	1,766.8	858.1	259.3	10,369.9

Table 77.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	9.0	.0	.0	.0	9.0
White spruce	19.8	.0	.0	.0	19.8
Black spruce	124.4	.0	.0	.0	124.4
Red spruce	624.2	11.0	22.1	.0	657.3
Speckled alder	429.6	36.4	.0	.0	466.0
Black chokecherry	11.0	.0	.0	.0	11.0
Gray birch	98.8	33.3	22.0	.0	154.1
Lambkill	2,376.9	447.1	19.7	.0	2,843.7
Labrador tea	19.7	.0	.0	.0	19.7
Eastern hophornbeam	29.5	.0	.0	.0	29.5
Red oak	4.4	.0	.0	.0	4.4
Spiraea	1,371.5	237.9	8.7	.0	1,618.1
Total infrequently browsed	5,118.8	765.7	72.5	.0	5,957.0
Witch-hazel	4.4	.0	.0	.0	4.4
Gooseberries	53.2	.0	.0	6.6	59.8
Total questionable	57.6	.0	.0	6.6	64.2
Unclassified species	2,256.2	680.0	26.4	54.8	3,017.4
Total all species	16,040.8	3,472.0	1,023.3	333.9	20,870.0
Sampling error (percent)	10	17	48	57	10

Table 78.--Area of timberland by forest type, forest-type group, and stand-size class, Western Maine, 1982

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
White pine	148.2	42.6	.0	.0	190.8
White pine/hemlock	31.8	53.1	.0	.0	84.9
Hemlock	42.5	21.2	.0	.0	63.7
White/red pine group	222.5	116.9	.0	.0	339.4
Balsam fir	94.8	109.3	21.4	.0	225.5
Red spruce	53.0	31.1	.0	.0	84.1
Red spruce/balsam fir	93.5	127.1	51.0	.0	271.6
White spruce	10.6	10.6	.0	.0	21.2
Black spruce	.0	.0	10.7	.0	10.7
Northern white-cedar	.0	10.6	.0	.0	10.6
Spruce/fir group	251.9	288.7	83.1	.0	623.7
White pine/no. red oak/wh. ash	10.6	.0	.0	.0	10.6
Oak/pine group	10.6	.0	.0	.0	10.6
Northern red oak	.0	31.8	.0	.0	31.8
Oak/hickory group	.0	31.8	.0	.0	31.8
Black ash/Amer. elm/red maple	.0	5.4	.0	.0	5.4
Elm/ash/red maple group	.0	5.4	.0	.0	5.4
Sugar maple/beech/yellow birch	263.0	290.2	18.6	.0	571.8
Red maple/northern hardwoods	92.8	145.8	10.8	.0	249.4
Pin cherry/reverting field	.0	10.6	8.6	.0	19.2
Mixed northern hardwoods	61.2	52.1	10.8	.0	124.1
Northern hardwoods group	417.0	498.7	48.8	.0	964.5
Aspen	.0	75.2	.0	.0	75.2
Paper birch	10.5	94.5	29.8	.0	134.8
Gray birch	.0	.0	19.4	.0	19.4
Aspen/birch group	10.5	169.7	49.2	.0	229.4
All forest types	912.5	1,111.2	181.1	.0	2,204.8

Table 79.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Western Maine, 1982

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Serviceberry	74	0	0	0	0	0	0	0	0	0	74	100
Beech	10,208	5,863	4,323	1,415	599	386	60	0	0	0	22,854	20
Apple	771	75	0	0	0	0	0	0	0	0	846	76
Eastern hophornbeam	1,696	423	0	0	0	0	0	0	0	0	2,119	36
Pin cherry	1,683	0	0	0	0	0	0	0	0	0	1,683	39
Black cherry	855	421	75	0	0	0	0	0	0	0	1,351	42
White oak	761	74	0	0	0	0	21	0	0	0	856	89
Northern red oak	3,838	1,624	1,038	565	299	199	24	37	52	6	7,682	27
Black oak	293	146	0	0	37	0	0	0	0	0	476	93
Mountain ash	816	141	79	38	73	0	0	0	0	0	1,147	40
Total, all species	20,995	8,767	5,515	2,018	1,008	585	105	37	52	6	39,088	14
Sampling error (percent)	15	18	20	22	22	28	51	100	75	100	14	

Table 80.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Western Maine, 1982

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	111,253	213,976	1,553,659	274,272	2,153,160
Saplings	14,713	234,109	5,730	0	254,552
Total sawtimber	125,966	448,085	1,559,389	274,272	2,407,712
Poletimber:					
Shrubs	371,176	403,673	3,058,036	160,707	3,993,592
Saplings	79,050	669,535	61,569	0	810,154
Total poletimber	450,226	1,073,208	3,119,605	160,707	4,803,746
Sapling/seedling:					
Shrubs	31,576	147,729	1,731,462	33,880	1,944,647
Saplings	10,848	91,076	23,088	0	125,012
Total sapling/seedling	42,424	238,805	1,754,550	33,880	2,069,659
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	618,616	1,760,098	6,433,544	468,859	9,281,117

Table 81.--Number of standing dead trees on timberland by species, condition class, and diameter class, Western Maine, 1982

Species	Intact top				Broken top				Total all trees	Sampling error
	Diameter class (inches at breast height)				Diameter class (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	7,716	451	61	8,228	13,911	1,176	199	15,286	23,514	13
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	347	36	0	383	72	0	0	72	455	57
Black spruce	255	0	0	255	0	0	0	0	255	100
Red spruce	2,660	191	13	2,864	2,316	313	131	2,760	5,624	21
Red pine	0	0	0	0	74	0	0	74	74	100
White pine	631	36	0	667	864	231	97	1,192	1,859	39
Northern white-cedar	330	0	13	343	837	36	0	873	1,216	47
Hemlock	221	74	37	332	38	0	0	38	370	90
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	12,160	788	124	13,072	18,112	1,756	427	20,295	33,367	11
Sugar maple	74	37	27	138	231	152	0	383	521	39
Red maple	622	0	0	622	1,833	126	148	2,107	2,729	25
Yellow birch	695	134	72	901	918	1,057	1,029	3,004	3,905	14
Paper birch	1,146	0	0	1,146	2,730	430	185	3,345	4,491	21
Gray birch	101	0	0	101	1,353	0	0	1,353	1,454	41
Beech	74	41	0	115	213	145	107	465	580	31
White ash	0	0	0	0	143	36	0	179	179	59
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	820	69	0	889	605	56	0	661	1,550	35
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	211	0	0	211	434	0	0	434	645	58
Other hardwoods	1,578	0	0	1,578	2,934	80	0	3,014	4,592	22
Total hardwoods	5,321	281	99	5,701	11,394	2,082	1,469	14,945	20,646	9
Total, all species	17,481	1,069	223	18,773	29,506	3,838	1,896	35,240	54,013	8
Sampling error (percent)	12	26	37	11	10	13	15	9	8	

Table 82.--Number of trees with observed cavities on timberland by species and condition class, Western Maine, 1982

Species	Live, no cull	Live cull			Total live	Dead		Total dead	Total all trees	Sampling error
		Tree condition class				Tree condition class				
		Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	796	732	0	0	1,528	487	2,100	2,587	4,115	17
Tamarack	37	0	0	0	37	0	0	0	37	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	37	0	0	0	37	0	0	0	37	100
Red spruce	296	0	0	0	296	36	117	153	449	32
Red pine	0	37	0	0	37	0	0	0	37	100
White pine	255	72	0	0	327	73	313	386	713	34
Northern white-cedar	23	725	0	0	748	72	170	242	990	40
Hemlock	177	123	0	0	300	0	0	0	300	54
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	1,621	1,689	0	0	3,310	668	2,700	3,368	6,678	13
Sugar maple	222	666	38	0	926	74	223	297	1,223	27
Red maple	839	2,757	0	72	3,668	74	439	513	4,181	21
Yellow birch	708	1,374	0	0	2,082	59	1,574	1,633	3,715	17
Paper birch	329	445	67	0	841	0	718	718	1,559	29
Gray birch	83	0	0	74	157	0	252	252	409	82
Beech	1,021	2,206	0	0	3,227	41	245	286	3,513	37
White ash	87	71	0	0	158	0	72	72	230	71
Black ash	75	30	0	0	105	0	0	0	105	77
Aspen	109	380	0	0	489	33	0	33	522	53
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	183	72	37	0	292	0	0	0	292	43
Basswood	19	0	0	0	19	0	0	0	19	100
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods	0	556	0	0	556	72	466	538	1,094	36
Total hardwoods	3,675	8,557	142	146	12,520	353	3,989	4,342	16,862	12
Total, all species	5,296	10,246	142	146	15,830	1,021	6,689	7,710	23,540	10
Sampling error (percent)	17	13	50	71		23	13		10	

Table 83.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Western Maine, 1982

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Northern white-cedar	4.2	39.0	.0	.0	43.2	52	10
Eastern hemlock	15.0	103.9	.0	.0	118.9	29	9
Striped maple	525.2	1,091.9	45.4	.0	1,662.5	15	3
Red maple	209.7	921.1	131.0	.0	1,261.8	12	13
Mountain maple	250.2	477.6	74.3	.0	802.1	24	3
Apple	.0	6.6	.0	.0	6.6	100	67
Staghorn sumac	.0	14.7	.0	.0	14.7	71	s[a]
Mountain ash	33.4	38.3	36.8	.0	108.5	41	s
Hobblebush viburnum	872.2	977.0	13.8	.0	1,863.0	20	s
Total readily browsed	1,909.9	3,670.1	301.3	.0	5,881.3	9	
Balsam fir	605.9	1,630.0	244.5	.0	2,480.4	11	13
White pine	21.5	38.1	10.9	.0	70.5	27	27
Sugar maple	477.5	742.6	57.4	.0	1,277.5	18	8
Shadbush	.0	65.7	.0	.0	65.7	41	s
Yellow birch	85.0	414.7	18.1	.0	517.8	26	7
Paper birch	134.2	489.8	140.4	.0	764.4	15	11
Beaked hazelnut	111.2	371.2	31.6	.0	514.0	34	s
Beech	180.0	386.3	33.8	.0	600.1	21	11
White ash	78.4	208.2	17.5	.0	304.1	21	6
Black ash	2.1	20.9	4.4	.0	27.4	52	23
Winterberry	.0	14.7	.0	.0	14.7	100	s
Honeysuckle	12.8	62.4	.0	.0	75.2	34	s
Mountain holly	6.6	6.4	.0	.0	13.0	71	s
Bigtooth aspen	23.1	15.0	47.3	.0	85.4	58	0
Quaking aspen	4.3	89.6	13.6	.0	107.5	26	23
Pin cherry	29.0	129.6	157.0	.0	315.6	31	13
Black cherry	.0	53.1	6.6	.0	59.7	33	11
Chokecherry	.0	153.3	1.7	.0	155.0	85	s
White oak	.0	.0	62.0	.0	62.0	71	0
Brambles	180.1	1,218.6	1,563.9	.0	2,962.6	23	s
Willows	2.1	2.1	1.7	.0	5.9	58	29
Common elderberry	2.2	23.4	21.5	.0	47.1	44	s
Red-berried elder	13.0	29.6	.0	.0	42.6	42	s
American elm	.0	2.2	.0	.0	2.2	100	0

Table 83.--Continued

Species and browse preference class	Stand-size class				All classes	Sampling error	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked			
	Million stems					Percent	
Blueberries	176.5	231.8	27.2	.0	435.5	32	s
Sweetfern	1.7	19.0	.0	.0	20.7	73	s
Maple-leaf viburnum	51.1	6.4	.0	.0	57.5	89	s
Wild raisin	78.0	128.9	2.2	.0	209.1	46	s
Total commonly browsed	2,276.3	6,553.6	2,463.3	.0	11,293.2	8	
Tamarack	.0	4.2	.0	.0	4.2	100	100
White spruce	2.1	26.1	.0	.0	28.2	79	8
Black spruce	.0	6.3	107.5	.0	113.8	95	24
Red spruce	75.3	345.4	10.7	.0	431.4	29	15
Speckled alder	81.9	105.0	38.9	.0	225.8	33	s
Gray birch	2.2	25.6	38.5	.0	66.3	41	20
Lambkill	17.1	21.3	92.5	.0	130.9	72	s
Labrador tea	.0	4.5	.0	.0	4.5	100	s
Eastern hophornbeam	2.1	48.4	26.3	.0	76.8	44	33
Red oak	17.0	156.1	6.5	.0	179.6	56	7
Spiraea	19.6	8.6	1.7	.0	29.9	51	s
Total infrequently browsed	217.3	751.5	322.6	.0	1,291.4	21	
Witch-hazel	23.4	88.4	.0	.0	111.8	44	s
Gooseberries	79.2	280.9	102.9	.0	463.0	31	s
Total questionable	102.6	369.3	102.9	.0	574.8	27	
Unclassified species	434.9	427.7	50.7	.0	913.3	30	
Total all species	4,941.0	11,772.2	3,240.8	.0	19,954.0	6	
Sampling error (percent)	15	8	27		6		

[a]Classed as shrub species.

Table 84.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Western Maine, 1982

(In millions of stems)

Species and browse preference class	Forest-type group							All groups
	White/ red pine	Spruce/ fir	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	17.2	4.2	.0	.0	.0	4.2	17.6	43.2
Eastern hemlock	70.0	.0	.0	4.3	.0	21.5	23.1	118.9
Striped maple	84.5	161.1	25.1	10.7	.0	1,201.4	179.7	1,662.5
Red maple	170.3	173.2	8.4	2.1	.0	708.3	199.5	1,261.8
Mountain maple	2.2	333.1	.0	.0	.0	349.2	117.6	802.1
Apple	.0	.0	.0	.0	.0	6.6	.0	6.6
Staghorn sumac	.0	.0	.0	6.3	.0	8.4	.0	14.7
Mountain ash	.0	58.2	.0	.0	.0	31.3	19.0	108.5
Hobblebush viburnum	39.0	373.8	.0	.0	.0	1,187.3	262.9	1,863.0
Total readily browsed	383.2	1,103.6	33.5	23.4	.0	3,518.2	819.4	5,881.3
Balsam fir	339.2	1,188.3	.0	37.7	.0	782.7	132.5	2,480.4
White pine	25.8	4.2	2.1	6.3	.0	23.7	8.4	70.5
Sugar maple	21.5	70.8	.0	16.7	.0	1,106.3	62.2	1,277.5
Shadbush	19.4	.0	.0	6.3	.0	33.6	6.4	65.7
Yellow birch	21.3	57.6	2.1	.0	.0	416.9	19.9	517.8
Paper birch	77.3	171.8	4.2	2.1	.0	390.1	118.9	764.4
Beaked hazelnut	14.8	75.4	.0	.0	.0	340.6	83.2	514.0
Beech	49.3	8.7	12.6	27.9	.0	431.2	70.4	600.1
White ash	61.5	8.6	.0	.0	.0	165.4	68.6	304.1
Black ash	.0	23.2	.0	.0	.0	4.2	.0	27.4
Winterberry	.0	14.7	.0	.0	.0	.0	.0	14.7
Honeysuckle	2.2	45.4	.0	.0	.0	12.7	14.9	75.2
Mountain holly	13.0	.0	.0	.0	.0	.0	.0	13.0
Bigtooth aspen	.0	25.2	.0	.0	.0	54.6	5.6	85.4
Quaking aspen	15.1	15.1	.0	.0	.0	41.8	35.5	107.5
Pin cherry	21.6	97.1	.0	.0	.0	99.5	97.4	315.6
Black cherry	12.8	6.5	.0	.0	.0	36.0	4.4	59.7
Chokecherry	.0	.0	.0	.0	.0	151.1	3.9	155.0
White oak	.0	.0	.0	.0	.0	28.5	33.5	62.0
Brambles	281.5	926.7	.0	.0	1.2	854.4	898.8	2,962.6
Willows	.0	.0	.0	.0	.0	4.2	1.7	5.9
Common elderberry	.0	14.8	.0	.0	.0	14.3	18.0	47.1
Red-berried elder	.0	12.8	.0	.0	.0	29.8	.0	42.6
American elm	.0	.0	.0	.0	.0	.0	2.2	2.2

Table 84.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group							All groups
	White/ red pine	Spruce/ fir	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Blueberries	148.1	127.1	10.4	12.9	.0	75.3	61.7	435.5
Sweetfern	.0	16.9	.0	2.1	.0	1.7	.0	20.7
Maple-leaf viburnum	2.1	2.1	.0	.0	.0	53.3	.0	57.5
Wild raisin	21.7	37.3	.0	.0	1.1	146.9	2.1	209.1
Total commonly browsed	1,148.2	2,950.3	31.4	112.0	2.3	5,298.8	1,750.2	11,293.2
Tamarack	.0	.0	.0	4.2	.0	.0	.0	4.2
White spruce	.0	21.9	.0	.0	.0	6.3	.0	28.2
Black spruce	.0	113.8	.0	.0	.0	.0	.0	113.8
Red spruce	.0	268.8	.0	.0	.0	123.7	38.9	431.4
Speckled alder	27.5	94.4	.0	.0	.0	91.3	12.6	225.8
Gray birch	10.7	13.1	.0	.0	.0	12.9	29.6	66.3
Lambkill	2.1	122.2	.0	.0	.0	2.2	4.4	130.9
Labrador tea	.0	4.5	.0	.0	.0	.0	.0	4.5
Eastern hophornbeam	.0	.0	.0	12.6	.0	47.4	16.8	76.8
Red oak	23.6	2.1	.0	4.2	.0	143.4	6.3	179.6
Spiraea	.0	.0	.0	.0	.0	28.1	1.8	29.9
Total infrequently browse	63.9	640.8	.0	21.0	.0	455.3	110.4	1,291.4
Witch-hazel	44.5	.0	.0	.0	.0	61.0	6.3	111.8
Gooseberries	72.9	149.5	.0	.0	.0	225.5	15.1	463.0
Total questionable	117.4	149.5	.0	.0	.0	286.5	21.4	574.8
Unclassified species	107.3	478.4	.0	.0	23.9	271.9	31.8	913.3
Total all species	1,820.0	5,322.6	64.9	156.4	26.2	9,830.7	2,733.2	19,954.0
Sampling error (percent)	23	15	100	61	100	10	29	6

Table 85.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Western Maine, 1982

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Northern white-cedar	30.2	6.6	6.4	.0	43.2
Eastern hemlock	118.9	.0	.0	.0	118.9
Striped maple	979.9	478.5	178.8	25.3	1,662.5
Red maple	817.2	340.4	91.3	12.9	1,261.8
Mountain maple	441.6	264.4	91.9	4.2	802.1
Apple	6.6	.0	.0	.0	6.6
Staghorn sumac	8.4	6.3	.0	.0	14.7
Mountain ash	87.6	14.4	6.5	.0	108.5
Hobblebush viburnum	1,262.0	308.6	199.9	92.5	1,863.0
Total readily browsed	3,752.4	1,419.2	574.8	134.9	5,881.3
Balsam fir	2,369.5	102.2	.0	8.7	2,480.4
White pine	62.1	.0	.0	8.4	70.5
Sugar maple	805.3	229.1	153.0	90.1	1,277.5
Shadbush	46.8	12.6	4.2	2.1	65.7
Yellow birch	218.1	188.7	74.6	36.4	517.8
Paper birch	562.3	159.6	34.0	8.5	764.4
Beaked hazelnut	495.0	14.7	.0	4.3	514.0
Beech	490.6	85.8	21.6	2.1	600.1
White ash	232.4	46.4	8.4	16.9	304.1
Black ash	23.0	.0	4.4	.0	27.4
Winterberry	14.7	.0	.0	.0	14.7
Honeysuckle	58.2	6.5	.0	10.5	75.2
Mountain holly	13.0	.0	.0	.0	13.0
Bigtooth aspen	72.5	2.2	8.6	2.1	85.4
Quaking aspen	84.0	.0	14.7	8.8	107.5
Pin cherry	274.4	20.2	21.0	.0	315.6
Black cherry	42.5	6.3	4.4	6.5	59.7
Chokecherry	142.5	12.5	.0	.0	155.0
White oak	39.0	23.0	.0	.0	62.0
Brambles	2,599.6	363.0	.0	.0	2,962.6
Willows	3.8	2.1	.0	.0	5.9
Common elderberry	44.9	2.2	.0	.0	47.1
Red-berried elder	32.2	10.4	.0	.0	42.6
American elm	2.2	.0	.0	.0	2.2
Blueberries	411.4	.0	.0	24.1	435.5
Sweetfern	18.6	2.1	.0	.0	20.7
Maple-leaf viburnum	55.3	2.2	.0	.0	57.5
Wild raisin	173.2	31.5	.0	4.4	209.1
Total commonly browsed	9,387.1	1,323.3	348.9	233.9	11,293.2

Table 85.--Continued

(In millions of stems)

Species and browse preference class	Browse utilization class				All classes
	None	Light	Moderate	Heavy	
Tamarack	4.2	.0	.0	.0	4.2
White spruce	28.2	.0	.0	.0	28.2
Black spruce	113.8	.0	.0	.0	113.8
Red spruce	427.1	4.3	.0	.0	431.4
Speckled alder	125.3	80.3	16.0	4.2	225.8
Gray birch	59.9	4.2	2.2	.0	66.3
Lambkill	130.9	.0	.0	.0	130.9
Labrador tea	4.5	.0	.0	.0	4.5
Eastern hophornbeam	53.8	23.0	.0	.0	76.8
Red oak	64.2	6.4	76.4	32.6	179.6
Spiraea	27.8	2.1	.0	.0	29.9
Total infrequently browsed	1,039.7	120.3	94.6	36.8	1,291.4
Witch-hazel	101.2	10.6	.0	.0	111.8
Gooseberries	437.9	20.9	2.1	2.1	463.0
Total questionable	539.1	31.5	2.1	2.1	574.8
Unclassified species	750.6	118.2	42.4	2.1	913.3
Total all species	15,468.9	3,012.5	1,062.8	409.8	19,954.0
Sampling error (percent)	6	14	20	32	6

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Appendix

Definition of Terms

Agricultural/herbaceous land. Land with herbaceous plant cover, both grasses and/or forbs, including cropland, pasture land, and natural grass lands.

Aquatic edge. An edge condition created when a terrestrial land use abuts a lake, pond, river, stream, or major wetland.

Bog/Marsh/Swamp. Land that has less than 16.7 percent stocking with live trees; and which characteristically supports low, generally herbaceous or shrubby vegetation, and which is intermittently covered with water during all seasons; includes tidal areas that are covered with salty or brackish water during high tides.

Browse. Forage resource; defined here as current twig growth of woody-stemmed plants occurring between 1 and 8 feet in height.

Browse preference class. Classification of each woody-stemmed species based on observed selection by white-tailed deer during winters in Maine (provided by Maine Department of Inland Fisheries and Wildlife).

Browse utilization class. Four levels of browse use: none, light (1-10 percent available), moderate (11-40 percent), and heavy (greater than 40 percent).

Cavity. A hollowed out space in a tree, either natural or faunal caused; frequently used as a nesting site or temporary refuge by many species of wildlife.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

Condition class. Classification of trees based on live or dead and condition of top of the tree (that is, intact, broken, dead).

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cropland. Land that currently supports agricultural crops including silage and feed grains, bare farm fields resulting from cultivation of harvest, and maintained orchards.

Cull tree. A live tree predominantly rotten or of rough form (see Growing-stock trees).

Cultural land. Land with human development as the major land cover;

includes industrial, commercial, and residential land uses.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from non-farm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Forest industry lands. Lands owned by companies or individuals operating primary wood-using plants.

Forest land. Land at least 10 percent stocked with trees of any size or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land by species that form a plurality of live tree basal area stocking.

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in Maine were combined into the following major forest-type groups (the descriptions apply to forests in Maine):

a. White/red pine--forests in which white pine, hemlock, or red pine, singly or in combination, make up a plurality of the stocking; common associates include red maple, red spruce, balsam fir, northern red oak, paper birch, and aspen.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make up a plurality of the stocking; common associates include paper birch, red maple, aspen, white pine, hemlock, yellow birch, and sugar maple.

c. Loblolly/shortleaf pine--forests in which pitch pine makes up a plurality of the stocking; gray birch is an associate of this rare type group.

d. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; beech and red spruce are associates.

e. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 75 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, and balsam fir.

f. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, northern white-cedar, aspen, and white ash.

g. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and white pine.

h. Aspen-birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, red spruce, white spruce, and white pine.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of

commercial species except rough and rotten trees.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Harvested cropland. All land from which crops were harvested or hay was cut and all land in orchards, citrus groves, vineyards, and nursery and greenhouse products.

Idle farmland. Former cropland or pasture that has not been tended within the last 2 years and that has less than 16.7 percent stocking with live trees, (established seedlings or larger trees) regardless of species.

Improved/maintained pasture. Land that is currently used and maintained for grazing (not including grazed cropland).

Industrial and commercial land. Supply yards, parking lots, factories, and so on.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, and so on, is 120 feet, and the minimum size of lakes, and so on, is 1 acre.

Land use edge. A condition created by the juxtaposition of two differing land uses.

Mast. Seed produced by woody stemmed, perennial plants, generally refers to soft (fruit) and hard (nuts) mast.

Mining and waste land. Surface mining, gravel pits, dumps.

Miscellaneous private lands. Privately owned lands other than forest-industry and farmer-owned lands.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Noncommercial forest land. Productive-reserved, urban, and unproductive forest land.

Noncensus water. Streams/rivers between 120 feet and 1/8 mile in width, and bodies of water between 1 and 40 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nonstocked area. A stand-size class of forest land that is stocked with less than 10 percent of minimum full stocking with all live trees.

Other cropland. Includes cropland used for cover crops; legumes, soil-improvement grasses, but not harvested and not pastured; cropland on which all crops failed; cropland in summer fallow and idle cropland.

Other farmland. All nonforest land on a farm excluding cropland, pasture, and idle farmland; includes farm lanes, stock pens, and farmsteads.

Pasture land. Includes any pasture land other than cropland and woodland pasture. Can include managed pasture lands which had applied lime fertilizer, seed, were improved by irrigation, drainage, or control of weeds and brush, or other normal treatment.

Pastured cropland. Includes rotation pasture and grazing land that would have been used for crops without additional improvement.

Poletimber stands. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

Productive-reserved forest land. Forest land sufficiently productive to qualify as timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Recreation site. Parks, campgrounds, playing fields, tracks, and so on.

Revised stand-size class. (Provided by Maine Department of Inland Fisheries and Wildlife and used in Table 5 only).

Seedling stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in saplings or seedlings or both, and with more stocking in seedlings than in saplings.

Sapling stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in saplings or seedlings or both, and with more stocking in saplings than in seedlings.

Small Poletimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, in which the stocking of poletimber exceeds that of sawtimber, and in which the stocking of trees 7.6 to 11.0 inches d.b.h. is greater or equal to that of trees 5.0 to 7.5 inches d.b.h.

Sawtimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, in which the stocking of sawtimber is at least equal to that of poletimber, and in which the stocking of trees 11.0 to 15.5 inches d.b.h. exceeds that of trees greater than 15.5 inches d.b.h.

Large Growth stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, in which the stocking of sawtimber is at least equal to that of poletimber, and in which the stocking of trees greater than 15.5 inches d.b.h. is at least equal to that of trees 11.0 to 15.5 inches d.b.h.

Nonstocked area. A stand-size class of forest land that is stocked with less than 10 percent of minimum full stocking with all live trees.

Poletimber trees. Live trees of commercial species at least 5.0 inches in d.b.h. but less than 11.0 inches in d.b.h.

Sawtimber trees. Live trees of commercial species at least 11.0 inches d.b.h.

Rights-of-way. Highways, pipelines, powerlines, canals.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees. (a) The same as rotten trees, except that rough trees do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) all live trees of noncommercial species.

Saplings. Live trees 1.0 through 4.9 inches d.b.h.

Sapling-seedling stands. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in saplings or seedlings or both.

Sawtimber stands. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Seedlings. Live trees less than 1.0 inch d.b.h. that are expected to survive.

Shrub. Woody stemmed perennial plant, generally with no well-defined main stem and less than 12 feet in height at maturity.

Shrub land. Land with shrub and/or tree cover and an obvious herbaceous understory; average canopy height of less than 25 feet and crown closure of less than 70 percent.

Single-family/custom house. House sheltering one family and immediately adjacent managed land.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand. A group of forest trees growing on forest land.

Stand area class. The area, contiguous to the plot, that is of the same overall stand size and major type group (hardwood, softwood, or uniform mixture of both).

Standing dead tree (snag). Woody stem greater than 5.0 inches in diameter and 10 feet in height.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of all live trees in the area.

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches d.b.h. and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used:

All live trees - these are used to classify forest land, forest types, and stand-size classes.

Growing-stock trees - these are used to classify stand-size classes.

Strip mine. Area devoid of vegetation due to current or recent general excavation.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (previously termed commercial forest land).

Tract/multiple family. Multiple individual residential units or attached units (e.g. apartment buildings, condominiums) and immediately adjacent managed land.

Transportation right-of-way. Land associated with highways and railroads.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

Urban forest land. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

Utility right-of-way. Land associated with pipeline and electric transmission lines; identified only if vegetative cover differs from adjacent land use.

Windbreak/hedgerow. Linear areas, less than 120 feet in width; with predominantly tree and/or shrub vegetation.

Tree Species of Maine (as encountered on field plots) (Powell and Dickson 1984).

Scientific Name[a]	Common Name(s)	Occurrence[b]
	SOFTWOODS	
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	vr
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch, hackmatack	c
Picea abies (L.) Karst.	Norway spruce	vr
P. glauca (Moench) Voss	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	c
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. rigida Mill.	pitch pine	vr
P. strobus L.	eastern white pine	c
Thuja occidentalis L.	northern white-cedar	vc
Tsuga canadensis (L.) Carr.	eastern hemlock	c
	HARDWOODS	
Acer pensylvanicum L.[c]	striped maple, moosewood	c
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	vr
A. saccharum Marsh.	sugar, rock, or hard maple	c
A. spicatum Lam.[c]	mountain maple	vr
Ailanthus altissima (Mill.) Swingle[c]	Ailanthus, tree-of-heaven	vr
Betula alleghaniensis Britton	yellow birch	c
B. lenta L.	sweet, black, or cherry birch	vr
B. papyrifera Marsh.	paper, white, or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carpinus caroliniana Walt.[c]	American hornbeam, blue-beech	vr
Carya spp. Nutt.	hickory	vr
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black or brown ash	c
F. pennsylvanica Marsh.	green or red ash	r
Juglans cinera L.	butternut	vr
Malus spp. Mill.[c]	apple	r
Nyssa sylvatica Marsh.	blackgum or black tupelo	vr
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam or ironwood	r
Populus balsamifera L.	balsam poplar	r
P. grandidentata Michx.	bigtooth aspen, poplar, or popple	c
P. tremuloides Michx.	quaking or trembling aspen, popple	c
Prunus pensylvanica L.f.[c]	pin or fire cherry	r
P. serotina Ehrh.	black cherry	r
Quercus alba L.	white oak	r
Q. coccinea Muenchh.	scarlet oak	vr
Q. rubra L.	northern red oak	c
Q. velutina Lam.	black or yellow oak	r
Robinia pseudoacacia L.	black locust	vr
Salix spp. L.[c]	willow	vr
S. nigra Marsh.	black willow	vr
Tilia americana L.	American basswood	r
Ulmus americana L.	American elm	r
U. rubra Muhl.	slippery or red elm	vr

[a]Names according to: Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 p.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

[c]Noncommercial species.

Shrub, sapling, and seedling species of Maine as encountered on field plots, but not listed in the tree species list.

Scientific Name[a]	Common Name
Juniperus spp. L.	juniper
Pinus banksiana Lamb	jack pine
Taxus canadensis Marsh.	Canada yew
Alnus spp. Mill.	alder
A. rugosa (Du Roi Spreng.	speckled alder
Amelanchier spp. Medic.	serviceberry
Andromeda glaucophylla Link.	bog rosemary
Arctostaphylos uva-ursi (L.) Spreng.	evergreen bearberry
Aronia melanocarpa (Michx.) Ell.	black chokeberry
Carya cordiformis (Wangenh.) K. Koch	bitternut hickory
C. ovata (Mill.) K. Koch	shagbark hickory
Ceanothus americanus L.	New Jersey tea
Celastrus scandens L.	American bittersweet
Clematis verticillaris DC	purple clematis
Comptonia peregrina (L.) J. Coult.	sweetfern
Cornus alternifolia L. f.	alternate-leaf dogwood
C. amomum Mill.	silky dogwood
C. canadensis L.	bunchberry
C. racemosa Lam.	red-panicled dogwood
C. stolonifera Michx.	red-osier dogwood
Corylus americana Marsh.	American hazelnut
C. cornuta Marsh.	beaked hazelnut
Crataegus spp. L.	hawthorn
Dirca palustris L.	leatherwood
Gaultheria hispidula R. Br.	creeping snowberry
G. procumbens L.	teaberry
Gaylussacia spp. HBK	huckleberry
Hamamelis virginiana L.	witch-hazel
Ilex montana (T. & G.) Gray	large-leaf holly
I. verticillata (L.) Gray	common winterberry
Kalmia angustifolia L.	sheep laurel
K. latifolia L.	mountain laurel
Ledum groenlandicum Oedr.	Labrador tea
Lonicera spp. L.	honeysuckle
Malus sylvestris (L.) Mill.	domestic apple
Mitchella repens L.	partridgeberry
Nemopanthus mucronata (L.) Trel.	mountain holly
Nyssa sylvatica Marsh.	blackgum
Parthenocissus quinquefolia (L.) Planch.	Virginia creeper
Physocarpus opulifolius (L.) Maxim.	ninebark
Prunus spp. L.	cherry, plum
P. virginiana L.	chokeberry
Quercus bicolor Willd.	swamp white oak
Q. ilicifolia Wangenh.	bear (scrub) oak
Rhamnus spp. L.	buckthorn
Rhododendron spp. L.	rhododendron, azalea
Rhus glabra L.	smooth sumac
R. radicans L.	poison ivy
R. typhina L.	staghorn sumac
Ribes spp. L.	currant, gooseberry
Rosa spp. L.	rose

Rubus spp. L.	briers, brambles
Sambucus canadensis L.	American elder
S. pubens Michx.	red-berried elder
Sassafras albidum (Nutt.) Nees	sassafras
Smilax spp. L.	greenbrier
Sorbus americana Marsh.	American mountain ash
Spirea spp. L.	spirea
Staphylea trifolia L.	American bladdernut
Tilia spp. L.	basswood
Ulmus spp. L.	elm
Vaccinium spp. L.	blueberry
Viburnum spp. L.	viburnum
V. acerifolium L.	maple-leaf viburnum
V. alnifolium Marsh.	hobblebush viburnum
V. cassinoides	wild raisin
V. dentatum	arrowwood
V. lentago L.	nannyberry
V. prunifolium L.	blackhaw
V. trilobum Marsh	American crawberry bush
Vitis spp. L.	grape
Zanthoxylum americanum Mill.	common prickly ash

[a]Names according to:

Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 p.

Symonds, George W.D. The shrub identification book. New York: William Morrow & Co; 1963. 379 p.

Percent density[a] and frequency[b] of shrubs, saplings, and seedlings, by species and geographic unit, Maine, 1982

Species	Washington County		Aroostook County		Penobscot County		Hancock County		Piscataquis County	
	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency
Balsam fir	10.1	72.3	13.2	72.1	13.5	72.1	8.5	73.9	15.3	70.9
Juniper	t[c]	.7	.0	.0	2.4	.5	t	1.1	.0	.0
Tamarack	.2	5.0	.1	2.0	.1	3.4	.1	1.1	t	.9
White spruce	.1	3.5	.4	10.7	.2	8.3	.1	3.4	.4	10.3
Black spruce	1.0	6.4	.9	6.6	.5	3.9	.8	5.7	.1	3.8
Red spruce	2.6	48.9	1.9	30.7	2.1	33.8	3.4	52.3	5.5	53.8
Jack pine	.0	.0	.0	.0	.0	.0	t	1.1	.0	.0
Red pine	t	1.4	t	.2	t	.5	.0	.0	.0	.0
Pitch pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Eastern white pine	.2	6.4	.1	2.4	.6	14.7	.2	5.7	.2	6.8
Canada yew	.0	.0	t	.4	.0	.0	.0	.0	.0	.0
Northern white-cedar	.7	17.0	3.3	22.6	3.1	24.5	1.6	15.9	1.8	15.0
Eastern hemlock	.6	12.8	.2	3.5	2.5	24.0	.3	10.2	.2	4.3
Striped maple	1.2	14.2	2.3	27.4	3.3	28.4	.6	9.1	4.7	41.5
Red maple	2.7	45.4	5.0	45.8	4.5	55.4	1.4	36.4	6.3	52.1
Silver maple	.0	.0	t	.2	.0	.0	.0	.0	.1	.4
Sugar maple	.7	8.5	5.7	32.2	2.9	19.6	.1	3.4	7.2	32.1
Mountain maple	.1	2.1	3.6	27.9	.8	9.8	.2	3.4	1.6	18.4
Ailanthus	t	.7	.0	.0	.0	.0	.0	.0	.0	.0
Alder	4.4	19.1	2.0	9.6	.7	3.9	1.5	10.2	4.6	9.8
Speckled alder	1.8	8.5	2.1	9.9	4.3	20.1	1.3	10.2	1.9	9.4
Serviceberry	.1	2.1	.2	3.5	.3	2.5	.1	2.3	t	1.3
Bog rosemary	.0	.0	.2	.2	t	.5	.0	.0	.1	.4
Evergreen bearberry	t	.7	t	.2	t	.5	.0	.0	.0	.0
Black chokecherry	t	.7	.0	.0	.0	.0	.0	.0	.0	.0
Yellow birch	1.8	20.6	2.5	32.7	2.4	29.4	2.3	11.4	3.3	38.0
Sweet (Black) birch	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Paper birch	1.6	28.4	1.3	18.2	1.0	17.2	.7	12.5	1.7	17.1
Gray birch	.6	10.6	t	.2	.6	11.3	.3	4.5	t	.9
American hornbeam	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Shagbark hickory	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
American bittersweet	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
New Jersey tea	.0	.0	t	.4	.0	.0	.0	.0	.0	.0
Purple clematis	.0	.0	t	.4	t	.5	t	1.1	.0	.0
Sweetfern	2.3	4.3	.0	.0	.5	1.5	2.8	4.5	.0	.0
Flowering dogwood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Alternate-leaf dogwood	t	.7	t	1.1	t	1.0	.0	.0	t	.4
Silky dogwood	t	.7	.4	3.7	t	.5	t	2.3	.0	.0
Roundleaf dogwood	.0	.0	.3	1.3	.1	1.0	.0	.0	.1	.9
Panicled dogwood	t	.7	.0	.0	t	.5	.0	.0	t	.4
Gray dogwood	.0	.0	.1	.4	.0	.0	.0	.0	.0	.0
Red-osier dogwood	.1	.7	2.2	6.1	.5	2.9	.1	1.1	.5	3.8

(continued)

Percent density[a] and frequency[b] of shrubs, saplings, and seedlings, by species and geographic unit, Maine, 1982

Species	Washington County		Aroostook County		Penobscot County		Hancock County		Piscataquis County	
	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency
Bunchberry	t	61.0	t	58.3	t	52.9	t	48.9	t	51.7
Hawthorn	.0	.0	t	.4	.1	1.0	.0	.0	.0	.0
American hazelnut	.0	.7	1.1	10.7	t	.5	t	1.1	.7	6.0
Beaked hazelnut	.1	2.1	1.9	11.2	.9	7.8	.0	.0	.4	4.7
Leatherwood	.0	.0	.0	.0	t	.5	.0	.0	.0	.0
American beech	1.0	11.3	2.4	18.4	3.1	26.0	.8	13.6	2.1	26.9
White ash	.1	4.3	.3	4.8	.8	12.7	.1	4.5	.8	7.7
Black ash	.2	7.8	.4	5.7	.6	6.9	.2	2.3	.4	8.1
Green ash	.0	.0	t	1.3	t	1.0	.0	.0	t	.4
Creeping snowberry	t	14.2	t	15.4	t	19.6	t	14.8	t	20.1
Teaberry	t	16.3	t	.9	t	17.6	t	21.6	t	4.7
Huckleberry	t	1.4	t	.4	.0	.0	.1	1.0	.0	.0
Witch-hazel	t	.7	t	.4	t	.5	.0	.0	.2	1.3
Large-leaf holly	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Common winterberry	.1	.7	.0	.0	1.1	3.4	.1	1.1	t	.9
Sheep laurel	13.8	17.7	2.8	5.0	6.3	9.3	8.0	15.9	.5	4.3
Mountain laurel	.0	.0	t	.2	.0	.0	.0	.0	t	.4
Labrador tea	5.2	3.5	.3	.4	4.3	4.9	.7	2.3	.9	1.7
Bush honeysuckle	.3	7.8	.8	9.4	.7	9.8	.3	4.5	.8	12.0
Vine honeysuckle	.0	.0	t	.2	.0	.0	.0	.0	.0	.0
Apple	.0	.0	t	.2	t	.5	t	1.1	.0	.0
Domestic apple	.0	.0	t	.2	.0	.0	.0	.0	.0	.0
Partidgeberry	t	7.8	t	9.9	t	13.7	t	6.8	t	13.2
Mountain holly	t	.7	t	.7	.2	2.5	t	2.3	.0	.0
Blackgum	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Eastern hophornbeam	.1	2.1	.1	1.5	.4	8.3	.2	2.3	.1	1.7
Virginia creeper	.0	.0	.0	.0	t	.5	.0	.0	.0	.0
Ninebark	.0	.0	.1	1.3	.0	.0	t	1.1	.1	.4
Balsam poplar	.1	2.1	1.1	5.9	.1	2.5	.1	1.1	t	1.7
Bigtooth aspen	.2	7.8	t	.7	.2	4.9	t	2.3	.1	.9
Quaking aspen	1.6	21.3	1.4	11.4	1.3	13.2	.7	10.2	.5	8.1
Cherry, plum	.0	.0	.3	2.6	t	.5	.0	.0	t	.4
Pin (Fire) cherry	.5	6.4	.4	4.6	.2	3.9	.1	2.3	.6	9.0
Black cherry	.1	3.5	.2	1.5	.2	2.0	.3	6.8	.6	6.4
Chokecherry	t	.7	.3	3.5	.4	4.9	.2	2.3	.1	2.6
White oak	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Swamp white oak	.0	.0	.0	.0	t	.5	.0	.0	.0	.0
Bear (Scrub) oak	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Northern red oak	t	1.4	.0	.0	t	2.0	t	1.1	t	1.3
Black oak	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Buckthorn	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Rhododendron	.0	.0	.0	.0	t	1.0	.0	.0	t	.4

(continued)

Percent density[a] and frequency[b] of shrubs, saplings, and seedlings, by species and geographic unit, Maine, 1982

Species	Washington County		Aroostook County		Penobscot County		Hancock County		Piscataquis County	
	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency
Azalea	5.5	3.5	.2	.2	1.3	2.5	2.6	1.1	.0	.0
Smooth sumac	.0	.0	.0	.0	.0	.0	.0	.0	t	.9
Staghorn sumac	.0	.0	t	.2	t	.5	.0	.0	t	.4
Poison ivy	.0	.0	.0	.0	t	1.0	.0	.0	t	.4
Currant, gooseberry	.2	4.3	4.7	15.1	.3	4.4	.4	2.3	1.5	8.1
Rose	.0	.0	.0	.0	t	.5	1.0	3.4	.2	.9
Briers, brambles	13.2	34.0	26.2	40.1	16.5	31.9	7.9	26.1	25.7	36.8
Willow	.7	5.7	.8	7.9	.3	3.9	.0	.0	.1	2.6
Black willow	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
American elder	.0	.0	.1	1.8	.1	2.0	.0	.0	.0	.0
Red-berried elder	.1	.7	.1	1.8	.0	.0	.0	.0	.2	2.1
Sassafras	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Greenbrier	t	.7	.0	.0	.0	.0	.0	.0	t	.4
American mountain ash	.0	.0	.2	2.9	t	1.0	.0	.0	.2	3.0
Spirea	6.4	15.6	.5	.7	3.3	11.8	3.6	13.6	.6	2.1
Basswood	.0	.0	.0	.0	t	.5	.0	.0	.0	.0
American basswood	.0	.0	t	.2	.1	1.0	.0	.0	.0	.0
Elm	.0	.0	t	.2	t	.5	.0	.0	t	.4
American elm	.0	.0	t	.4	.2	1.0	.0	.0	.0	.0
Slippery elm	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
American cranberry bush	t	.7	t	.2	t	2.5	t	2.3	t	.4
American bladdernut	.0	.0	t	.9	t	.5	.0	.0	.0	.0
Blueberry	5.2	17.7	.4	4.2	3.8	13.2	42.2	29.5	1.1	8.1
Viburnum	.2	3.5	.5	3.5	.5	4.4	.1	2.3	.2	3.8
Maple-leaf viburnum	.0	.0	.2	1.1	.5	1.5	.0	.0	.3	3.4
Hobblebush viburnum	.3	4.3	2.6	12.7	.2	5.9	.0	.0	2.4	13.7
Wild raisin	1.9	9.2	.1	2.2	.5	3.9	.0	.0	.1	.9
Arrowwood	.0	.0	.0	.0	.1	1.5	.3	2.3	.1	.4
Nannyberry	t	1.4	.2	1.1	.2	1.5	1.0	13.6	.2	2.1
Blackhaw	.1	.7	.0	.0	.0	.0	.0	.0	.0	.0
Grape	.0	.0	t	.2	.0	.0	.0	.0	t	.4
Common prickly ash	.6	1.4	.0	.0	.0	.0	.0	.0	.0	.0
Unknown vine	t	2.1	t	.4	.0	.0	.0	.0	t	.9
Unknown dwarf shrub	t	4.3	t	11.2	t	12.7	t	10.2	t	2.6
Unknown deciduous shrub	7.3	24.8	.6	8.1	2.8	15.7	2.0	13.6	1.8	6.0
Unknown evergreen shrub	1.7	2.8	.2	1.1	1.2	1.5	.1	1.1	.7	1.3
Unknown tree	t	.7	.3	2.9	t	1.5	.6	11.4	.1	2.1

(continued)

Percent density[a] and frequency[b] of shrubs, saplings, and seedlings, by species and geographic unit, Maine, 1982

Species	Capital Region		Somerset County		Casco Bay		Western Maine		All Units		Importance value[d]
	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	
Balsam fir	8.3	60.3	12.9	69.0	4.1	29.3	12.5	69.0	11.9	63.9	75.8
Juniper	4.7	4.7	.0	.0	5.1	8.3	.0	.0	.8	1.9	2.8
Tamarack	t	.7	t	.4	t	.3	t	.5	.1	1.4	1.5
White spruce	.1	2.4	.2	6.2	.0	.0	.1	1.9	.2	5.7	5.9
Black spruce	.1	.3	.6	4.0	t	.3	.5	.9	.6	3.4	4.0
Red spruce	.8	15.5	3.5	40.7	.9	5.7	2.2	26.9	2.8	30.7	33.4
Jack pine	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Red pine	t	.3	t	.4	t	1.3	.0	.0	t	.5	.5
Pitch pine	.0	.0	.0	.0	t	.3	.0	.0	.0	.0	.0
Eastern white pine	.6	14.8	.2	4.9	2.0	30.3	.3	8.8	.3	10.9	11.3
Canadian yew	.0	.0	.0	.0	.1	1.3	.0	.0	t	.3	.3
Northern white-cedar	.8	6.7	1.3	12.8	.2	.7	.2	2.8	1.7	13.1	14.8
Eastern hemlock	.7	12.8	.2	5.3	2.7	28.0	.6	7.4	.8	11.7	12.4
Striped maple	1.6	7.1	4.3	37.6	.4	5.3	8.1	44.0	3.2	24.3	27.5
Red maple	4.7	49.5	6.3	50.9	7.4	60.3	6.1	51.4	5.0	50.6	55.6
Silver maple	t	.3	.0	.0	.0	.0	t	.5	t	.2	.2
Sugar maple	.8	13.8	7.4	34.5	1.2	11.7	5.8	32.9	4.3	23.2	27.5
Mountain maple	.3	4.4	3.6	25.2	.1	.7	3.9	18.1	1.9	14.2	16.1
Ailanthus	.0	.0	.0	.0	.0	.0	t	.5	t	.1	.1
Alder	2.6	9.1	1.2	4.4	1.7	9.0	1.1	3.2	2.4	8.4	10.8
Speckled alder	2.5	10.4	3.2	11.9	1.8	8.0	1.7	9.3	2.4	10.7	13.0
Serviceberry	.1	1.0	t	1.3	t	.7	.3	4.6	.1	2.2	2.3
Bog rosemary	.1	.3	.0	.0	.0	.0	.0	.0	.1	.2	.2
Evergreen bearberry	t	.3	t	.4	t	.3	.0	.0	t	.3	.3
Black chokecherry	.0	.0	t	.4	.9	1.7	.0	.0	.1	.3	.4
Yellow birch	.7	9.8	2.5	34.5	.5	6.7	2.3	22.7	2.3	23.7	26.0
Sweet (Black) birch	.0	.0	.0	.0	.2	3.0	.0	.0	t	.4	.4
Paper birch	2.0	22.2	2.7	26.5	2.1	23.0	3.7	35.2	1.8	22.2	24.0
Gray birch	1.6	17.8	t	1.8	2.6	19.0	.3	5.1	.5	7.9	8.3
American hornbeam	.1	1.3	.1	.4	.1	1.3	.0	.0	t	.4	.4
Shagbark hickory	.0	.0	.0	.0	.1	1.3	.0	.0	t	.2	.2
American bittersweet	t	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
New Jersey tea	.0	.0	.0	.0	.0	.0	.0	.0	t	.1	.1
Purple clematis	t	.3	.0	.0	.0	.0	.0	.0	t	.2	.2
Sweetfern	.2	1.0	.0	.0	2.1	6.0	.1	.9	.7	1.7	2.3
Flowering dogwood	t	.3	t	.4	.1	.7	.0	.0	t	.2	.2
Alternate-leaf dogwood	.1	2.4	.1	1.8	.3	1.7	.0	.9	.1	1.2	1.3
Silky dogwood	.3	6.4	.1	1.8	t	1.0	.0	.0	.1	2.2	2.3
Roundleaf dogwood	.0	.0	.0	.0	t	.3	.0	.0	.1	.5	.6
Panicled dogwood	.1	.3	.3	.9	.1	.7	.0	.0	.1	.4	.4
Gray dogwood	t	.7	t	.4	.0	.0	t	.5	t	.3	.3
Red-osier dogwood	.5	3.0	.3	1.8	t	.7	.0	.0	.7	2.8	3.5

(continued)

Percent density[a] and frequency[b] of shrubs, saplings, and seedlings, by species and geographic unit, Maine, 1982

Species	Capital Region		Somerset County		Casco Bay		Western Maine		All Units		Importance value[d]
	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	
Bunchberry	t	20.2	t	48.7	t	19.3	t	32.9	t	42.7	42.7
Hawthorn	.2	2.0	.0	.0	t	1.0	.0	.0	t	.6	.6
American hazelnut	.2	1.3	.9	5.3	.3	1.7	.0	.0	.5	4.0	4.5
Beaked hazelnut	2.2	15.8	1.2	6.2	2.2	7.3	2.6	8.8	1.2	8.5	9.7
Leatherwood	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
American beech	1.9	19.9	2.0	21.2	1.5	20.7	2.9	24.5	2.1	20.8	22.9
White ash	2.1	21.9	.6	8.4	1.7	19.7	1.5	14.8	.7	11.6	12.3
Black ash	.1	2.7	.2	5.3	.1	1.7	.2	2.8	.3	4.8	5.1
Green ash	1.3	8.1	.0	.0	t	.3	.0	.0	.1	1.6	1.7
Creeping snowberry	t	1.7	t	8.8	t	1.0	t	6.9	t	10.8	10.8
Teaberry	t	17.2	t	2.2	t	49.0	t	9.7	t	14.7	14.7
Huckleberry	.2	.7	.0	.0	.7	1.0	.0	.0	.1	.5	.5
Witch-hazel	.5	4.0	t	1.3	2.4	16.7	.6	4.6	.3	3.8	4.1
Large-leaf holly	.0	.0	.0	.0	t	.3	.1	.5	t	.1	.1
Common winterberry	.6	4.0	.0	.4	2.1	4.0	.1	.5	.3	1.7	2.0
Sheep laurel	1.7	1.3	1.9	3.5	1.8	14.3	.7	3.2	4.2	7.1	11.3
Mountain laurel	.0	.0	.0	.0	.1	.3	t	.5	t	.2	.2
Labrador tea	.2	.3	.5	1.3	.1	.7	t	.5	1.5	1.4	2.9
Bush honeysuckle	.7	4.0	1.0	9.7	.3	2.7	.4	6.0	.6	7.4	8.1
Vine honeysuckle	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apple	.1	3.0	t	.4	.1	2.0	t	.5	t	.9	.9
Domestic apple	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
Partidgeberry	t	11.1	t	4.0	t	21.7	t	4.6	t	11.0	11.0
Mountain holly	.1	.3	.1	.4	.3	.7	.1	.9	.1	.8	.9
Blackgum	.0	.0	.0	.0	t	.3	.0	.0	.0	.0	.0
Eastern hophornbeam	.3	6.1	.1	1.8	.5	7.0	.4	4.6	.2	4.0	4.2
Virginia creeper	t	1.0	.0	.0	t	.7	t	.5	t	.3	.3
Ninebark	.0	.0	t	.9	.0	.0	.0	.0	t	.5	.5
Balsam poplar	.0	.0	.1	1.8	t	.7	.0	.0	.3	2.1	2.4
Bigtooth aspen	.4	4.7	.1	.9	.4	3.3	.4	3.2	.2	2.8	3.0
Quaking aspen	1.6	16.8	.9	7.5	1.2	12.7	.5	9.7	1.1	12.2	13.2
Cherry, plum	.3	3.0	.7	2.7	.1	.3	.1	.5	.2	1.4	1.6
Pin (Fire) cherry	1.4	14.1	.8	7.5	1.0	8.0	1.6	12.5	.7	7.9	8.6
Black cherry	1.3	13.1	.2	2.2	1.6	14.3	.3	6.0	.4	6.3	6.7
Chokecherry	1.4	7.7	.2	2.2	.1	.7	.8	2.8	.3	3.3	3.6
White oak	t	.7	.0	.0	.5	7.0	.3	.9	.1	1.2	1.2
Swamp white oak	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Bear (Scrub) oak	.0	.0	.0	.0	1.7	1.7	.0	.0	.1	.2	.3
Northern red oak	1.4	22.9	.1	1.3	2.8	42.3	.9	9.3	.4	10.5	10.9
Black oak	.0	.0	.0	.0	.1	2.7	.0	.0	t	.4	.4
Buckthorn	.0	.0	.0	.0	t	.7	.0	.0	t	.1	.1
Rhododendron	.0	.0	.0	.0	.0	.0	.0	.0	t	.1	.1

(continued)

Percent density[a] and frequency[b] of shrubs, saplings, and seedlings, by species and geographic unit, Maine, 1982

Species	Capital Region		Somerset County		Casco Bay		Western Maine		All Units		Importance value[d]
	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	Density	Frequency	
Azalea	t	.3	.0	.0	.0	.0	.0	.0	1.1	.6	1.7
Smooth sumac	.0	.0	t	1.3	.0	.0	.0	.0	t	.2	.2
Staghorn sumac	.1	2.0	t	.4	t	.3	.1	.9	t	.6	.6
Poison ivy	t	3.4	.0	.0	t	1.3	.0	.0	t	.8	.8
Currant, gooseberry	.7	3.7	1.9	10.6	t	.7	2.3	9.3	1.8	7.5	9.3
Rose	.1	1.3	.0	.0	.8	.3	.0	.0	.1	.5	.7
Briers, brambles	19.3	35.7	26.7	40.7	12.0	29.0	15.3	21.8	19.9	34.1	54.0
Willow	.1	2.4	t	.9	.9	3.0	t	.9	.4	3.6	4.0
Black willow	.0	.0	.0	.0	.1	.3	t	.5	t	.1	.1
American elder	.1	1.7	.0	.0	t	.3	.2	3.7	.1	1.2	1.3
Red-berried elder	.0	.0	.1	3.1	t	.3	.2	3.2	.1	1.3	1.4
Sassafras	.0	.0	.0	.0	.1	1.0	.0	.0	t	.1	.1
Greenbrier	.0	.0	.0	.0	t	.3	.0	.0	t	.1	.1
American mountain ash	.1	.3	t	.4	.0	.0	.6	6.0	.1	1.7	1.8
Spirea	9.5	24.9	.2	1.3	5.7	19.7	.2	3.2	2.5	9.7	12.2
Basswood	.1	1.7	.0	.0	.1	1.0	t	.5	t	.5	.5
American basswood	.1	1.7	t	.4	t	1.0	.1	1.4	t	.7	.7
Elm	.0	.0	.0	.0	.0	.0	.0	.0	t	.1	.1
American elm	.1	1.7	.1	1.8	t	1.0	t	.5	t	.8	.8
Slippery elm	.0	.0	.0	.0	.1	.3	.0	.0	.0	.0	.1
American cranberry	.0	.0	t	.4	.0	.0	.0	.0	t	.5	.5
American bladdernut	.0	.0	.0	.0	.0	.0	.2	.9	t	.3	.3
Blueberry	2.6	7.7	.7	4.9	6.9	19.3	2.2	9.3	5.0	10.5	15.6
Viburnum	.3	4.4	.2	2.2	.9	5.3	.1	1.9	.3	3.7	4.0
Maple-leaf viburnum	.3	2.4	.3	1.3	.3	2.0	.3	1.9	.2	1.7	1.9
Hobblebush viburnum	t	.7	4.3	23.9	.2	1.3	9.6	28.2	2.4	10.6	13.0
Wild raisin	.4	4.4	.4	2.7	1.3	9.0	1.1	6.0	.6	4.3	4.9
Arrowwood	3.2	15.8	.1	1.3	.7	5.0	.4	1.4	.3	3.4	3.7
Nannyberry	.1	.3	.1	.9	.9	2.7	.1	1.4	.2	1.9	2.1
Blackhaw	.0	.0	t	.4	.0	.0	.0	.0	t	.1	.1
Grape	t	.3	.0	.0	t	.3	.0	.0	t	.2	.2
Common prickly ash	.0	.0	.0	.0	.0	.0	.0	.0	.1	.1	.2
Unknown vine	t	.7	t	.4	t	.3	.0	.0	t	.5	.5
Unknown dwarf shrub	t	3.0	t	8.4	t	5.3	t	1.9	t	6.8	6.8
Unknown deciduous shrub	6.4	22.6	1.0	8.0	6.6	28.3	1.9	11.6	2.8	15.0	17.9
Unknown evergreen shrub	1.8	2.0	.3	3.5	1.6	.7	.5	2.3	.8	1.7	2.5
Unknown tree	.1	2.7	.4	5.8	.2	4.0	.1	1.4	.2	3.1	3.3

[a] The proportion of the estimated number of all stems.
[b] The proportion of all new ground plots where the species was recorded.
[c] t=Trace amount, less than 0.5 percent, or vine or dwarf shrub that is not counted in tally.
[d] Sum of proportional density and frequency.

Metric equivalents of units used in this report

1 acre = 4,046.86 square meters or 0.404686 hectares
1000 acres - 404.686 hectares
1,000,000 acres = 404,686 hectares
1 inch = 2.54 centimeters or 0.0254 meters
1 foot - 30.48 centimeters or 0.3048 meters
Breast height = 1.4 meters above ground level
1 mile = 1.609 kilometers

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A statistical report on the first forest wildlife habitat survey of Maine (1982). Findings are displayed in 85 tables covering forest area, landscape patterns, mast potential, standing dead and cavity trees, and understory woody-stemmed vegetation. Data are presented at county and/or unit and state levels of resolution.

Keywords: Forest habitat survey, inventory, landscape pattern, snags, mast, browse.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

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Forest Wildlife Habitat Statistics for New Hampshire—1983

Robert T. Brooks
Thomas S. Frieswyk
Anne M. Malley

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Abstract

This is a statistical report on the first forest wildlife habitat survey of New Hampshire conducted in 1982-83 by the Forest Inventory, Analysis, and Economics Unit, Northeastern Forest Experiment Station, U.S. Department of Agriculture, Broomall, Pennsylvania. Results are displayed in 58 tables covering forest area, ownership, land pattern, mast potential, standing dead and cavity trees, and understory woody-stemmed vegetation. Data are presented at county and/or unit and state levels of resolution.

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Foreword

The fourth inventory of New Hampshire was under the overall direction of Joseph E. Barnard, Project Leader of the Forest Inventory and Analysis Unit. John R. Peters assisted in the development and administration of the operating plan and had supervisory responsibility for the inventory process. Charles T. Scott was responsible for the design of the inventory and sample selection. David J. Alerich supervised the aerial-photo interpretation and data collection. He was assisted by Thomas B. Hartman, Joseh G. Reddan, and Karen J. Sykes. Numerous temporary employees assisted with field data collection.

David R. Dickson and Thomas S. Frieswyk applied FINSYS (Forest INventory SYStem), a generalized data processing system, to the specific needs of the New Hampshire inventory and produced summary tables for the state, geographic sampling units, and counties. Thomas W. Birch and Thomas S. Frieswyk were instrumental in assuring that the area estimates were consistent with the three previous inventories. Anne M. Malley assisted in various data processing capacities and prepared and balanced the tables in this report. Margaret Little, Carol McAfee, J. Roger Trettel, and Karen Sykes performed a variety of data editing and compilation tasks.

Carmela M. Hyland was responsible for administrative and secretarial services. Marie Pennestri typed the text for this report.

Northeastern Forest Experiment Station
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January 1987

Forest Wildlife Habitat Statistics for New Hampshire--1983

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Introduction

Under the authority of the McSweeney-McNary Forest Research Act of 1928 and subsequent acts, including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978, the USDA Forest Service conducts periodic forest inventories of all states to provide up-to-date information on the forest resource of the Nation. The initial inventory of New Hampshire's forest resources was conducted in 1948 (Larson et al. 1954). Succeeding inventories were carried out in 1960 (Ferguson and Jensen 1963), 1973 (Kingsley 1976), and 1983 (this report)--the first year for which wildlife habitat resources data were collected.

This fourth inventory was a cooperative effort of the New Hampshire Department of Resources and Economic Development, the USDA Soil Conservation Service, the White Mountain National Forest, and the Northeastern Forest Experiment Station. The Forest Inventory, Analysis, and Economics Unit of the Northeastern Forest Experiment Station conducted the inventory on all forest land, developed the resource tables, and prepared this report.

Photo interpreters systematically plotted 15,950 points on new aerial photographs and classified these points according to land use. Points determined to be timberland were further stratified into cubic-foot volume classes. A subsample of 697 of the photo points was randomly chosen to be established on the ground. Data from the ground plots were edited and summarized using the FINSYS computer system.

The 1983 survey of New Hampshire's forest resources involved several associated studies and considerable analysis. Reports on forest resources, (i.e. area, number of trees, and volume), biomass, ownership, primary forest products industry, and habitat resources will be published.

For additional data summaries or information, contact the Forest Inventory, Analysis, and Economics Unit, USDA Forest Service, 370 Reed Road, Broomall, PA 19008 (phone 215-461-3037).

This report is New Hampshire's first in a continuing series of state-by-state wildlife habitat resource bulletins. The format used was chosen to expeditiously report on the Forest Inventory and Analysis habitat survey. It is our intent to write additional publications(s) that will include detailed analyses and interpretation of the habitat survey.

Forest Inventory reports are produced at a scale appropriate for regional (i.e. large county or multi-county and larger areas) applications. The information in the publications is useful to resource professionals concerned with planning and forming policy for extensive areas of forest land. The use of the

information for site specific applications would be as background standards for comparison to the site conditions.

Example Application

This habitat report, used in conjunction with the timber (Frieswyk and Malley 1985) and ownership reports, provides a detailed description of the forest land of New Hampshire. From these reports, a user can select tables that collectively describe a specific habitat resource.

The following example describes the condition of regional white-tailed deer (Odocoileus virginianus) habitat by county (Fig. 1). The example illustrates the use of Forest Inventory information to evaluate a specific habitat. The process can be duplicated for other wildlife species by using tabular data that represent components of a species habitat.

In this example, the percentage of total land area in forest/nonforest and number of edge indices are measures of forest landscape diversity. Nonforest lands, particularly agricultural lands, can be an important component of deer habitat. As this survey is of forested land, it would be inappropriate to characterize nonforest land resources. Users of this report are advised to secure supplemental, comparable information on nonforest lands for a more complete habitat evaluation. Generally, the greater the diversity of land use, the better the habitat conditions for deer. The percentage of timberland in sawtimber, conifer forest types is a measure of winter range availability. The percentage of timberland in sapling/seedling forest cover is related to the availability of foraging habitat. The percentage of timberland in forest stands of 100 acres or less is a measure of the diversity of forest-land cover. This habitat component, as with previous landscape diversity measures, is a double-edged sword. A small level of diversity implies extensive forest cover offering little variety of habitat conditions, whereas a high level of diversity indicates excessive forest fragmentation resulting in a deterioration in cover value and impediments to travel to parts of an animal's home range. Mast tree and sapling, seedling, and shrub densities are measures of potential forage resources.

The following is a comparison of New Hampshire geographic unit white-tailed deer habitat conditions with overall state and adjacent Vermont and Maine (Fig. 2) habitat conditions:

Northern Unit

*Forest area is a greater than the state, much greater than adjacent Vermont, and equivalent to adjacent Maine.

*Landscape diversity is less than the state and northern Vermont, but greater than western Maine.

*Winter range area is slightly less than the state and equivalent to adjacent regions of Vermont and Maine.

*Foraging range area is equivalent to the state and less than adjacent Vermont or Maine.

*Small acreage stand area is less than the state, equivalent to northern Vermont, and greater than western Maine.

*Mast potential is less than the state, slightly greater than adjacent Maine, and much greater than adjacent Vermont.

*Browse potential is slightly greater than the state with equivalent use, greater than northern Vermont and slightly less than western Maine, but with less use than either region.

The Northern unit of New Hampshire has slightly poorer white-tailed deer habitat conditions than the

Figure 1.--Selected habitat components, with source tables, that collectively describe the condition of white-tailed deer habitat, by county and geographic unit, New Hampshire, 1983

Habitat component	Belknap County	Cheshire County	Hillsboro County	Merrimack County	Rockingham County	Strafford County	Sullivan County	Southern Unit
Percent total area (Table 1)								
Forest land	85.0	89.1	75.6	82.5	73.4	79.0	86.5	81.2
Nonforest land	15.0	10.9	24.4	17.5	26.6	21.0	13.5	18.8
Number of edge indices (Table 2)								
Total	116.5	59.9	102.8	104.6	134.4	107.2	58.2	97.9
Sum Forest- and Shrub-	84.9	37.4	46.9	62.1	84.5	62.5	39.2	58.2
Percent Timberland area								
Sawtimber, conifer types	30.0	23.6	50.8	27.4	47.8	29.9	41.3	36.0
Sapling/seedling	6.7	5.3	1.7	10.3	9.1	9.7	4.8	6.7
Stands less than 100 acres	96.7	94.3	81.2	92.7	100.0	64.2	97.5	90.6
Mast potential - trees per acre timberland								
Beech	8.7	11.5	5.2	6.5	3.1	13.1	7.8	7.5
Oak	32.7	25.5	39.8	23.0	36.4	28.4	3.8	27.2
Browse potential - thousand sapling, seedling, and shrub stems per acre timberland								
Readily browsed	1.1	1.0	1.1	1.3	0.8	1.1	2.2	1.2
Commonly browsed	2.9	2.7	3.2	3.3	4.2	3.5	2.9	3.2
Infrequently browsed	0.6	1.0	0.4	0.8	0.8	1.0	0.8	0.8
Questionable species and others	0.1	0.7	1.4	0.6	1.2	0.4	0.1	0.7
Total	4.7	5.3	6.0	6.0	7.1	6.0	6.1	5.9
Browse potential - percent with observed browse use								
Readily browsed	14.1	16.6	1.9	10.6	19.4	12.4	20.5	13.5
Commonly browsed	12.0	10.7	6.1	6.8	8.4	15.3	14.9	9.6
Infrequently browsed	2.1	9.5	8.0	7.0	15.9	58.3	1.3	13.3
Questionable species and others	0.0	0.0	4.4	20.3	7.5	3.9	0.0	7.1
Total	10.9	10.3	5.1	9.1	10.4	21.1	14.9	10.6

Figure 1.--Continued

Habitat component	Carroll County	Coos County	Grafton County	Northern unit	All Units
Percent total area					
Forest land	93.4	93.9	89.7	92.2	86.7
Nonforest land	6.6	6.1	10.3	7.8	13.3
Number of edge indices					
Total	43.8	29.5	61.4	44.7	74.9
Sum Forest- and Shrub-	24.2	18.9	35.7	26.5	44.4
Percent Timberland area (Tables 4, 5, unit and county tables)					
Sawtimber, conifer types	29.0	21.5	20.6	22.8	29.1
Sapling/seedling	3.2	8.5	7.0	6.8	6.7
Stands less than 100 acres	73.1	74.7	52.0	65.8	77.8
Mast potential - trees per acre timberland (Table 6, unit and county tables)					
Beech	23.3	5.9	10.0	11.2	9.4
Oak	13.8	0.0	12.5	7.7	17.1
Browse potential - thousand sapling, seedling, and shrub stems per acre timberland (Table 12, unit and county tables)					
Readily browsed	1.6	2.5	1.5	1.9	1.6
Commonly browsed	2.9	8.2	4.4	5.6	4.5
Infrequently browsed	1.3	1.2	0.8	1.0	0.9
Questionable species and others	0.3	0.3	0.2	0.3	0.5
Total	6.1	12.1	6.9	8.9	7.4
Browse potential - percent with observed browse use (Table 12, unit and county tables)					
Readily browsed	21.0	25.4	15.5	21.7	18.7
Commonly browsed	5.8	8.9	8.1	8.3	8.8
Infrequently browsed	0.0	2.9	10.4	4.3	8.0
Questionable species and others	10.9	2.8	10.0	7.1	7.1
Total	8.9	11.6	10.0	10.8	10.7

Figure 2.--Selected habitat components that collectively describe the condition of white-tailed deer habitat by geographic unit for adjacent Vermont (1983) and Maine (1982)

Habitat component	Vermont		Maine	
	Northern Unit	Southern Unit	Western	Casco Bay
Percent total area				
Forest land	75.7	77.4	93.1	75.9
Nonforest land	24.3	22.6	6.9	24.1
Edge indices				
Total	72.2	90.4	28.0	45.3
Sum Forest- and Shrub-	48.5	63.5	17.2	22.8
Percent Timberland area				
Sawtimber, conifer types	22.9	17.0	21.5	41.3
Sapling/seedling	11.6	9.8	8.2	12.0
Stands less than 100 acres	65.1	93.7	38.2	86.3
Mast potential - trees per acre timberland				
Beech	6.2	17.5	10.4	5.7
Oak	1.0	5.8	4.1	23.7
Browse potential - thousand sapling, seedling, and shrub stems per acre timberland				
Readily browsed	1.6	1.3	2.7	1.0
Commonly browsed	4.1	3.5	5.1	4.5
Infrequently browsed	0.8	1.5	0.6	1.6
Questionable species and others	0.2	0.6	0.3	0.2
Total	6.8	6.8	9.1	8.5
Browse potential - percent with observed browse use				
Readily browsed	27.5	26.2	36.2	12.9
Commonly browsed	12.9	24.8	16.9	11.9
Infrequently browsed	12.5	32.6	19.5	12.8
Questionable species and others	3.4	23.0	6.2	22.6
Total	16.1	26.6	22.5	12.8

state overall due to the predominant forest cover, low landscape diversity, and lesser mast potential. Adjacent northern Vermont habitat offers more landscape diversity, but this is slightly offset by a lesser mast and browse potential and greater browse use. Adjacent western Maine has generally poorer habitat conditions as it is even more extensively forested with lesser mast potential and excessive browse use on an equivalent browse resource.

Southern Unit

*Forest area is slightly less than the state and greater than adjacent southern Vermont and the Casco Bay unit of Maine.

*The landscape is more diverse than the state, and adjacent Maine but less than southern Vermont.

*Winter range is more abundant than the state and adjacent Vermont and slightly less than adjacent Maine.

*Foraging range area is equivalent to the state and less than adjacent regions of Maine and Vermont.

*Mast potential is greater than the state and southern Vermont due to increased oak density and equivalent to adjacent Maine.

*Browse resource potential is less than the state and adjacent regions of Vermont and Maine and with greater observed use in all comparisons.

The southern unit has white-tailed deer habitat conditions equivalent to those for the state but there should be a concern for the fragmentation of forest acreage. The unit has slightly better habitat conditions than adjacent southern Vermont because of the greater mast resource potential and much lesser use of the browse resource. The unit has slightly poorer habitat conditions than the adjacent Casco Bay unit of Maine because of less browse resource potential and a more fragmented forest.

This white-tailed deer habitat evaluation could be completed for other wildlife species. It should work best for species with broad habitat requirements (eurytopic) and with large home ranges as these limits are most comparable to the Forest Inventory.

In addition to a synthesis of various habitat information for species specific habitat evaluation, the survey is very useful as a benchmark report on the status of individual habitat components useful to a variety of wildlife. This information will gain value after the subsequent (1990's) resurvey of the State's forest resources. At that time, trends can be identified that will be useful for managing and improving New Hampshire's wildlife habitat resources.

Highlights

* New Hampshire, with 4,987.2 thousand acres of forest land, is 87 percent forested. Forest land has increased only slightly since 1960. The three northern counties of New Hampshire are more heavily forested than the seven southern counties.

* Land use patterns are considerably more diverse in southern New Hampshire than the north, and the southeastern corner of the state has the most diverse landscape.

* Private ownership of forest land predominates (86 percent) public ownership throughout the state.

* Sawtimber stands dominate, covering 61 percent of the forest area, and the Northern Hardwood group is the predominant forest type group (42 percent).

* Forest stands of less than 50 acres are more common (67 percent) than larger stands.

* Northern red oak is the most common mast-producing tree, followed closely by American beech.

* Balsam fir is the most common standing dead tree in New Hampshire's forest while yellow birch is the most common standing dead tree with observed cavities. Of both live and dead trees, red maple is the most often tallied species with an observed cavity.

* Brambles are the most common understory woody-stemmed species. For all understory woody-stemmed species, browse use is generally light to none.

Reliability of the Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout New Hampshire. The data are estimates and the reliability of the estimating procedure can be judged by two important statistical measures: accuracy and precision. Among statisticians, accuracy refers to the success of estimating the true value, precision refers to the clustering of sample values about their own averages or to the variation among repeated samples. We are mainly interested in the accuracy of the inventory, but in most instances we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Preliminary tables are sent to other agencies and to outside experts familiar with the resources of New Hampshire. If questions arise, the data are reviewed and reanalyzed to resolve the differences. Also, great care is taken to keep all sources of procedural error to a minimum by careful training of both field and office personnel, frequent inspection of field and office work, and application of the most reliable inventory methods.

Because of the care exercised in the inventory process, estimates of precision afford a reasonable measure of the inventory's adequacy. The precision of each estimate is described by its sampling error. Sampling errors are given with several tables in this report. The others are available upon request.

The following example illustrates how to use reported sampling errors. There are an estimated 102.9 million standing dead trees in New Hampshire (Table 8). The reported sampling error is 5.7 percent or 5,862.8 thousand trees. If we assume that the estimates of this statistic are normally distributed, this means that if there were no errors in procedure and we repeated the survey in the same way, the odds are 2 to 1 (66 percent probability) that the resulting estimate of standing dead trees in the State would be 97.0 to 108.7 million trees, or 102.9 $\pm$ 5.9 million trees. Similarly there is a 95 percent probability (19 to 1) that the estimate would be 91.1 to 114.6, or 102.9 $\pm$ 11.7 million trees.

Estimates are most precise or reliable at the state level, followed by unit estimates, and then county estimates. For example, where the state level sampling error on the number of standing dead trees is 5.7 percent, the same value for the Northern unit is 7.9 percent (Table 16), the Southern unit is 7.1 percent (Table 24), and county values range from 11.0 percent (Coos County, Table 39) to 25.3 percent (Strafford County, Table 54). Thus, county estimates are often considerably less reliable than unit or state estimates. In general, as the size of the estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases.

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Appendix

Definition of Terms

Agricultural/herbaceous land. Land with herbaceous plant cover, both grasses and/or forbs, including cropland, pasture land, and natural grass lands.

Aquatic edge. An edge condition created when a terrestrial land use abuts a lake, pond, river, stream, or major wetland.

Bog/Marsh/Swamp. Land that has less than 16.7 percent stocking with live trees; and which characteristically supports low, generally herbaceous or shrubby vegetation, and which is intermittently covered with water during all seasons; includes tidal areas that are covered with salty or brackish water during high tides.

Browse. Forage resource; defined here as current twig growth of woody-stemmed plants occurring between 1 and 8 feet in height.

Browse preference class. Classification of each woody-stemmed species based on observed selection by white-tailed deer during winters in Maine (provided by Maine Department of Inland Fisheries and Wildlife). Local preference may vary greatly from this classification.

Browse utilization class. Four levels of browse use; none, light (1-10 percent available), moderate (11-40 percent), and heavy (greater than 40 percent).

Cavity. A hollowed out space in a tree, either natural or faunal caused; frequently used as a nesting site or temporary refuge by many species of wildlife.

Commercial species. Tree species presently or prospectively suitable for industrial wood products. Excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

Condition class. Classification of trees based on live or dead and condition of top of the tree (i.e. intact, broken, dead).

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cropland. Land that currently supports agricultural crops including silage and feed grains, bare farm fields resulting from cultivation of harvest, and maintained orchards.

Cull tree. A live tree predominantly rotten or of rough form (see Growing-stock trees).

Cultural land. Land with human development as the major land cover; includes industrial, commercial, and residential land uses.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not. Excludes land leased by farm operators from non-farm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Forest industry lands. Lands owned by companies or individuals operating primary wood-using plants.

Forest land. Land at least 10 percent stocked with trees of any size or that formerly had such tree cover and is not currently developed for nonforest use. The minimum area for classification of forest land is 1 acre.

Forest type. A classification of forest land by species that form a plurality of live tree basal area stocking.

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in New Hampshire were combined into the following major forest-type groups (the descriptions apply to forests in New Hampshire):

a. White/red pine--forests in which white pine, hemlock, or red pine, singly or in combination, make up a plurality of the stocking; common associates include red maple, red spruce, balsam fir, northern red oak, paper birch, and aspen.

b. Spruce/fir--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make up a plurality of the stocking; common associates include paper birch, red maple, aspen, white pine, hemlock, yellow birch, and sugar maple.

c. Hard pine--forests in which pitch pine makes up a plurality of the stocking; gray birch is an associate of this rare type group.

d. Oak/pine--forests in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking but where white pine contributes 25 to 50 percent of the stocking; beech and red spruce are associates.

e. Oak/hickory--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 75 percent of the stocking; common associates include white pine, paper birch, red spruce, beech, hemlock, and balsam fir.

f. Elm/ash/red maple--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, northern white-cedar, aspen, and white ash.

g. Northern hardwoods--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red spruce, paper birch, hemlock, white ash, aspen, and white pine.

h. Aspen-birch--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking; common associates include balsam fir, red maple, red spruce, white spruce, and white pine.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings; that is, all live trees of commercial species except rough and rotten trees.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Harvested cropland. All land from which crops were harvested or hay was cut and all land in orchards, citrus groves, vineyards, and nursery and greenhouse products.

Idle farmland. Former cropland or pasture that has not been tended within the last 2 years and that has less than 16.7 percent stocking with live trees, (established seedlings or larger trees) regardless of species.

Improved/maintained pasture. Land that is currently used and maintained for grazing (not including grazed cropland).

Industrial and commercial land. Supply yards, parking lots, factories, etc.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc., is 120 feet, and the minimum size of lakes, etc., is 1 acre.

Land use edge. A condition created by the juxtaposition of two differing land uses.

Mast. Seed produced by woody-stemmed, perennial plants, generally refers to soft (fruit) and hard (nuts) mast.

Mining and waste land. Surface mining, gravel pits, dumps.

Miscellaneous private lands. Privately owned lands other than forest-industry and farmer-owned lands.

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Noncommercial forest land. Productive-reserved, urban, and unproductive forest land.

Noncensus water. Streams/rivers between 120 feet and 1/8 mile in width, and bodies of water between 1 and 40 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, and highways.

Nonstocked area. A stand-size class of forest land that is stocked with less than 10 percent of minimum full stocking with all live trees.

Other cropland. Includes cropland used for cover crops; legumes, soil-improvement grasses, but not harvested and not pastured; cropland on which all crops failed; cropland in summer fallow and idle cropland.

Other farmland. All nonforest land on a farm excluding cropland, pasture, and idle farmland; includes farm lanes, stock pens, and farmsteads.

Pasture land. Includes any pasture land other than cropland and woodland pasture. Can include lands which had applied lime fertilizer, seed, improved by irrigation, drainage, or control of weeds and brush.

Pastured cropland. Includes rotation pasture and grazing land that would have been used for crops without additional improvement.

Poletimber stands. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber trees. Live trees of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than sawtimber trees.

Productive-reserved forest land. Forest land sufficiently productive to qualify as timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Recreation site. Parks, campgrounds, playing fields, tracks, etc.

Rights-of-way. Highways, pipelines, powerlines, canals.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees. (a) The same as rotten trees, except that rough trees do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) all live trees of noncommercial species.

Saplings. Live trees 1.0 through 4.9 inches d.b.h.

Sapling-seedling stands. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in saplings or seedlings or both.

Sawtimber stands. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Seedlings. Live trees less than 1.0 inch d.b.h. that are expected to survive.

Shrub. Woody-stemmed perennial plant, generally with no well-defined main stem and less than 12 feet in height at maturity; defined by species.

Shrub land. Land with shrub and/or tree cover and an obvious herbaceous understory; average canopy height of less than 25 feet and crown closure of less than 70 percent.

Single-family/custom house. House sheltering one family and immediately adjacent managed land.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Stand. A group of forest trees growing on forest land.

Stand area class. The area, contiguous to the plot, that is of the same overall stand size and major type group (hardwood, softwood, or uniform mixture of both).

Standing dead tree (snag) - woody stem greater than 5.0 inches in diameter and 10 feet in height.

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of all live trees in the area.

State lands. Lands owned by the State or leased to the State for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches d.b.h. and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used:

All live trees - these are used to classify forest land, forest types, and stand size classes.

Growing-stock trees - these are used to classify stand-size classes.

Stripmine. Area devoid of vegetation due to current or recent general excavation.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (previously termed commercial forest land).

Tract/multiple family. Multiple individual residential units or attached units (e.g. apartment buildings, condominiums) and immediately adjacent managed land.

Transportation right-of-way. Land associated with highways and railroads.

Trees. Woody plants that have well-developed stems and are usually more than 12 feet in height at maturity; defined by species.

Unproductive forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

Urban forest land. Noncommercial forest land within urban areas that is completely surrounded by urban development (not parks), whether commercial, industrial, or residential.

Utility right-of-way. Land associated with pipeline and electric transmission lines; identified only if vegetative cover differs from adjacent land use.

Windbreak/hedgerow. Linear areas, less than 120 feet in width; with predominantly tree and/or shrub vegetation.

Index to Tables

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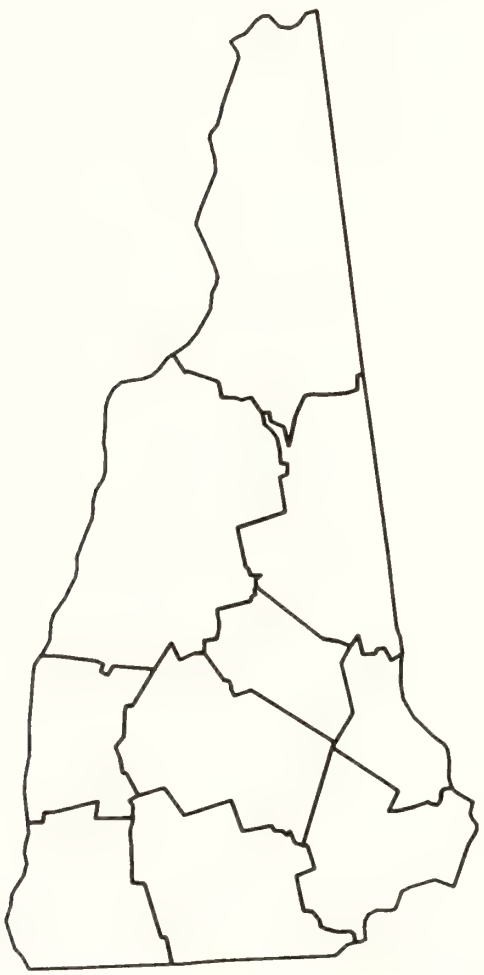


Table 1.-- Land area by land use class and county, New Hampshire, 1983

(In thousands of acres)

Land use class	Carroll	Coos	Grafton	Northern Unit
Forest land:				
Timberland	525.8	1,021.5	942.9	2,490.2
Unproductive	12.9	22.0	18.8	53.7
Productive reserved	18.6	41.3	25.2	85.1
Total forest	557.3	1,084.8	986.9	2,629.0
Nonforest land:				
Cropland[a]	4.9	14.8	22.4	42.1
Improved pasture[a]	1.6	6.7	12.3	20.6
Idle farmland				-[b]
Other farmland				-[b]
Bog/marsh/swamp				8.8[b]
Right-of-way				27.4[b]
Mining/wasteland				-[b]
Recreation site				6.1[b]
Industrial/commercial				-[b]
Tract/multi-family				-[b]
Single/custom house				81.8[b]
Other nonforest				13.2[b]
Non-census water				23.2[b]
Other	33.0[c]	48.6[c]	78.9[c]	
Total nonforest	39.5	70.1	113.6	223.2
Total land area	596.8	1,154.9	1,100.5	2,852.2

Table 1.--Continued

(In thousands of acres)

Land use class	Belknap	Cheshire	Hillsboro	Merrimack	Rockingham	Strafford	Sullivan	Southern Unit	All counties
Forest land:									
Timberland	217.3	396.6	418.2	492.0	319.9	185.6	292.3	2,321.9	4,812.1
Unproductive	2.2	4.6	1.1	.7	4.7	.7	4.9	18.9	72.6
Productive reserved	.4	3.9	5.2	1.2	4.0	.9	1.8	17.4	102.5
Total forest	219.9	405.1	424.5	493.9	328.6	187.2	299.0	2,358.2	4,987.2
Nonforest land:									
Cropland[a]	4.8	12.1	15.8	16.4	13.3	8.8	11.0	82.2	124.3
Improved pasture[a]	1.4	5.9	3.7	7.0	4.5	5.0	3.2	30.7	51.3
Idle farmland								6.9[b]	6.9
Other farmland								40.6[b]	49.4
Bog/marsh/swamp								44.3[b]	71.7
Right-of-way								6.1[b]	6.1
Mining/wasteland								29.6[b]	35.7
Recreation site								14.8[b]	14.8
Industrial/commercial								14.4[b]	14.4
Tract/multi-family								168.9[b]	250.7
Single/custom house								14.5[b]	27.7
Other nonforest								36.2[b]	59.4
Non-census water	32.6[c]	31.7[c]	117.0[c]	81.6[c]	101.0[c]	36.0[c]	32.3[c]		
Other									
Total nonforest	38.8	49.7	136.5	105.0	118.8	49.8	46.5	545.1	768.3
Total land area	258.7	454.8	561.0	598.9	447.4	237.0	345.5	2,903.3	5,755.5

[a] Source: 1982 Census of Agriculture.
[b] Detailed nonforest land use class area estimates for the unit are based on the number of nonforest field plots.
[c] Detailed nonforest land use class area not estimated at the county level.

Table 2.--Index to land use edge by type of land use and county, New Hampshire, 1981, 1982

(Edge hits[a] per thousand acres)

Land use edge type	Carroll	Coos	Grafton	Northern Unit
Forest -				
forest	13.2	14.1	24.0	17.7
shrub	4.1	1.8	1.6	2.2
agricultural/ herbaceous	2.8	1.9	6.3	3.8
cultural	3.8	0.7	3.1	2.3
Shrub -				
agricultural/ herbaceous	0.2	0.4	0.6	0.4
cultural	0.1	t[b]	0.1	0.1
Agicultural/herbaceous -				
cultural	0.3	0.3	0.5	0.4
Hedgerow	0.4	0.7	1.0	0.7
Transportation right-of-way	11.0	4.6	12.4	8.9
Utility right-of-way	1.8	0.9	2.6	1.7
Aquatic	6.0	4.2	9.1	6.5
All types	43.8	29.5	61.4	44.7
Number of photo plots	65	126	118	309
Number of edge hits	1594	2078	4058	7730

Table 2.--Continued

(Edge hits[a] per thousand acres)

Land use edge type	Belknap	Cheshire	Hillsboro	Merrimack	Rockingham	Strafford	Sullivan	Southern Unit	All counties
Forest -									
forest	49.6	19.6	14.8	32.3	35.8	22.4	21.0	26.9	22.9
shrub	4.5	6.9	7.5	7.6	10.0	10.0	5.1	7.5	5.2
agricultural/ herbaceous	24.7	6.6	7.2	10.0	21.2	18.1	8.2	12.4	8.7
cultural	4.1	2.6	14.6	9.0	13.6	8.7	2.7	8.6	5.9
Shrub -									
agricultural/ herbaceous	2.0	1.0	1.0	2.1	2.5	1.9	1.6	1.7	1.1
cultural	0.0	0.7	1.8	1.1	1.4	1.4	0.6	1.1	0.6
Agicultural/herbaceous-cultural	3.5	1.1	3.3	2.6	5.3	5.0	0.2	2.9	1.8
Hedgerow	3.8	2.5	12.5	7.8	11.2	12.8	1.5	7.8	4.7
Transportation right-of-way	13.6	9.8	29.4	18.4	19.9	17.4	10.4	18.0	14.1
Utility right-of-way	4.4	1.6	2.2	2.8	3.0	0.9	1.8	2.4	2.1
Aquatic	6.7	7.5	8.6	11.0	10.4	8.7	5.2	8.6	7.7
All types	116.5	59.9	102.8	104.6	134.4	107.2	58.2	97.9	74.9
Number of photo plots	36	62	79	84	64	33	48	406	715
Number of edge hits	2348	2080	4545	4919	4817	1981	1564	22254	29984

[a] Edge condition on an aerial photograph sampled by a line transect (Brooks and Scott 1983).
[b] Trace amount, less than 0.05.

Table 3.--Area of timberland by ownership class and geographic unit, New Hampshire, 1983

(In thousands of acres)

Ownership class	Northern Unit	Southern Unit	All units
National Forest	471.7	.0	471.7
Other federal	.5	17.9	18.4
State	27.6	51.5	79.1
County and municipal	15.7	83.2	98.9
Total public	515.5	152.6	668.1
Forest industry	533.8	124.0	657.8
Farmer[a]	133.6	239.5	373.1
Miscellaneous private:			
Individual	1,012.8	1,572.5	2,585.3
Corporate	125.0	124.2	249.2
Other	169.5	109.1	278.6
Total private	1,974.7	2,169.3	4,144.0
All ownerships	2,490.2	2,321.9	4,812.1

[a] Includes "part-time farmers" (persons whose occupation is not farmer but who say their land is part of a farm). These acres were included in miscellaneous private in the previous survey.

Table 4.--Area of timberland by forest type, forest-type group, and stand-size class, New Hampshire, 1983

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	24.2	.0	7.0	.0	31.2
White pine	644.4	92.8	74.5	.0	811.7
White pine/hemlock	257.9	78.1	14.4	.0	350.4
Hemlock	140.8	14.5	7.4	.0	162.7
White/red pine group	1,067.3	185.4	103.3	.0	1,356.0
Balsam fir	78.2	118.7	9.7	.0	206.6
Red spruce	34.1	72.1	9.7	.0	115.9
Red spruce/balsam fir	183.9	112.1	20.4	.0	316.4
White spruce	29.8	.0	.0	.0	29.8
Tamarack	.0	8.9	.0	.0	8.9
Spruce/fir group	326.0	311.8	39.8	.0	677.6
Pitch pine	9.4	16.7	15.6	.0	41.7
Hard pine group	9.4	16.7	15.6	.0	41.7
Wh. pine/no. red oak/wh. ash	56.0	29.2	7.3	.0	92.5
Other oak/pine	.0	7.4	.0	.0	7.4
Oak/pine group	56.0	36.6	7.3	.0	99.9
Post, black, or bear oak	22.0	.0	.0	.0	22.0
Chestnut oak	7.1	.0	.0	.0	7.1
White oak/red oak/hickory	14.6	14.3	.0	.0	28.9
White oak	14.5	.0	.0	.0	14.5
Northern red oak	100.2	111.0	9.8	.0	221.0
Scarlet oak	.0	14.2	.0	.0	14.2
Red maple/central hardwoods	7.3	28.9	.0	.0	36.2
Mixed central hardwoods	36.6	14.7	.0	.0	51.3
Oak/hickory group	202.3	183.1	9.8	.0	395.2
Black ash/Amer. elm/red maple	8.1	6.7	17.5	.0	32.3
Elm/ash/red maple group	8.1	6.7	17.5	.0	32.3
Sugar maple/beech/yellow birch	780.6	275.2	44.8	.0	1,100.6
Black cherry	10.1	.0	7.0	.0	17.1
Red maple/northern hardwoods	219.9	263.4	23.3	.0	506.6
Pin cherry/reverting field	.0	20.1	14.2	.0	34.3
Mixed northern hardwoods	205.6	122.6	16.8	.0	345.0
Northern hardwoods group	1,216.2	681.3	106.1	.0	2,003.6
Aspen	29.4	69.6	17.6	.0	116.6
Paper birch	18.8	63.0	.0	.0	81.8
Gray birch	.0	.0	7.4	.0	7.4
Aspen/birch group	48.2	132.6	25.0	.0	205.8
All forest types	2,933.5	1,554.2	324.4	.0	4,812.1

Table 5.--Area of timberland by stand area class and county, New hampshire, 1983

(In thousands of acres)

County	1 - 9 acres	10 - 19 acres	20-49 acres	50 - 99 acres	100 - 499 acres	500+ acres	All Classes
Northern Unit							
Carroll	177.7	63.9	57.0	86.0	132.0	9.2	525.8
Coos	202.7	245.6	161.3	153.5	211.6	46.8	1,021.5
Grafton	67.1	77.7	232.8	113.0	313.3	139.0	942.9
Total	447.5	387.2	451.1	352.5	656.9	195.0	2,490.2
Southern Unit							
Belknap	29.2	71.9	102.0	7.1	7.1	.0	217.3
Cheshire	171.9	86.2	94.5	21.3	8.0	14.7	396.6
Hillsboro	89.4	94.3	77.1	78.7	78.7	.0	418.2
Merrimack	139.1	150.0	116.0	51.0	14.3	21.6	492.0
Rockingham	91.8	111.6	109.2	7.3	.0	.0	319.9
Strattford	32.6	42.5	29.5	14.6	51.9	14.5	185.6
Sullivan	99.4	72.0	106.1	7.4	7.4	.0	292.3
Total	653.4	628.5	634.4	187.4	167.4	50.8	2,321.9
All Counties	1,100.9	1,015.7	1,085.5	539.9	824.3	245.8	4,812.1

Table 6.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Eastern redcedar	558	0	0	0	0	0	0	0	0	0	558	88
Hickory	1,392	974	655	136	16	83	24	0	0	0	3,280	44
Beech	15,157	11,502	7,613	4,244	3,191	1,825	1,028	260	418	30	45,268	10
Butternut	0	0	0	0	47	23	0	23	21	0	114	84
Apple	1,093	370	154	0	0	0	0	0	20	0	1,637	51
Eastern hophornbeam	1,522	1,379	99	133	51	0	0	0	0	0	3,184	24
Pin cherry	772	188	0	0	0	17	0	0	0	0	977	48
Black cherry	4,510	2,178	1,935	777	285	89	0	0	0	0	9,774	16
Chokecherry	33	0	0	0	0	0	0	0	0	0	33	100
White oak	4,434	2,402	917	918	422	286	129	19	26	23	9,576	17
Scarlet oak	769	624	579	266	93	31	46	20	26	0	2,454	48
Chestnut oak	629	710	373	197	53	0	0	0	0	0	1,962	57
Northern red oak	20,362	16,295	9,187	6,010	3,241	1,871	1,148	244	427	41	58,826	10
Black oak	2,923	2,410	1,703	1,225	697	221	127	55	74	0	9,435	19
Mountain ash	1,278	91	159	41	0	0	0	0	0	0	1,569	36
Total, all species	55,432	39,123	23,374	13,947	8,096	4,446	2,502	621	1,012	94	148,647	5.2
Sampling error (percent)	7	7	8	8	9	10	13	22	16	43	5.2	

Table 7.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, New Hampshire, 1983

(In thousands of stems)

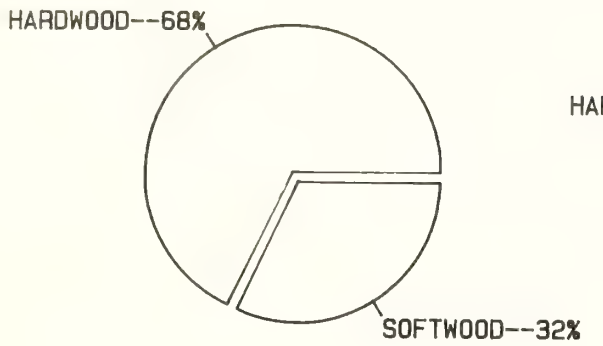
Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	397,505	1,085,939	5,010,158	174,885	6,668,487
Saplings	202,155	1,009,066	17,460	0	1,228,681
Total sawtimber	599,660	2,095,005	5,027,618	174,885	7,897,168
Poletimber:					
Shrubs	241,077	1,139,200	4,136,484	102,306	5,619,067
Saplings	74,812	901,247	30,242	2,865	1,009,166
Total poletimber	315,889	2,040,447	4,166,726	105,171	6,628,233
Sapling/seedling:					
Shrubs	67,348	688,999	1,854,756	71,254	2,682,357
Saplings	18,059	214,962	20,954	0	253,975
Total sapling/seedling	85,407	903,961	1,875,710	71,254	2,936,332
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	1,000,956	5,039,413	11,070,054	351,310	17,461,733

Table 8.--Number of standing dead trees on timberland by species, condition, and diameter class, New Hampshire, 1983

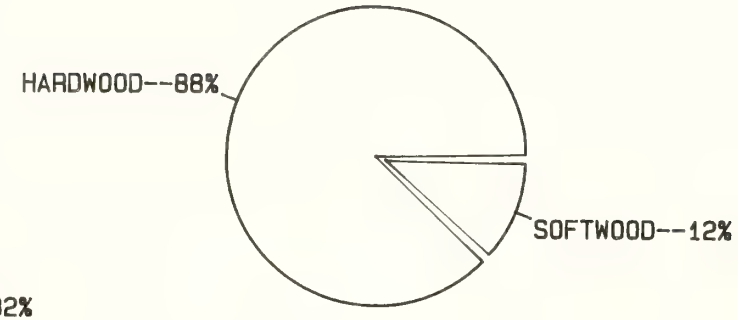
Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	6,969	529	96	7,594	15,191	983	152	16,326	23,920	15
Tamarack	512	101	0	613	41	23	0	64	677	61
White spruce	100	0	0	100	0	0	0	0	100	100
Black spruce	0	0	0	0	182	0	0	182	182	100
Red spruce	9,716	428	93	10,237	6,212	473	167	6,852	17,089	16
Red pine	16	0	0	16	34	0	0	34	50	75
White pine	6,621	304	152	7,077	6,575	709	540	7,824	14,901	13
Northern white-cedar	238	23	0	261	372	0	0	372	633	79
Hemlock	963	54	122	1,139	720	244	104	1,068	2,207	23
Other softwoods	655	45	0	700	330	55	26	411	1,111	50
Total softwoods	25,790	1,484	463	27,737	29,657	2,487	989	33,133	60,870	9
Sugar maple	539	105	7	651	819	270	187	1,276	1,927	24
Red maple	1,330	48	9	1,387	3,922	527	290	4,739	6,126	15
Yellow birch	1,139	158	64	1,361	5,141	901	788	6,830	8,191	14
Paper birch	1,129	23	0	1,152	3,201	458	91	3,750	4,902	18
Gray birch	759	0	0	759	1,432	0	0	1,432	2,191	29
Beech	788	107	81	976	943	550	429	1,922	2,898	23
White ash	282	0	0	282	477	87	23	587	869	34
Black ash	46	0	0	46	65	0	0	65	111	72
Aspen	1,337	267	0	1,604	3,388	169	21	3,578	5,182	21
White oaks	135	0	26	161	392	16	0	408	569	55
Red oaks	512	44	39	595	854	34	32	920	1,515	26
Basswood	0	0	19	19	0	70	0	70	89	81
Elm	707	0	69	776	496	126	125	747	1,523	29
Other hardwoods[a]	3,139	17	0	3,156	2,597	56	85	2,738	5,894	25
Total hardwoods	11,842	769	314	12,925	23,727	3,264	2,071	29,062	41,987	7
Total, all species	37,632	2,253	777	40,662	53,384	5,751	3,060	62,195	102,857	5.7
Sampling error (percent)	9	16	19	9	7	11	11	6	5.7	

[a] Includes noncommercial hardwoods.

PERCENTAGE DISTRIBUTION OF NUMBERS OF TREES WITH OBSERVED CAVITIES BY CONDITION AND SPECIES GROUP



DEAD



LIVE

Table 9.--Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition, New Hampshire, 1983

Species	Live				Total live	Dead		Total dead	Total all trees	Sampling error
	No cull	Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	1,012	247	0	43	1,302	252	1,520	1,772	3,074	20
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	443	197	0	0	640	320	1,134	1,454	2,094	29
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	691	1,723	23	0	2,437	277	1,624	1,901	4,338	17
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	818	504	34	0	1,356	60	384	444	1,800	18
Other softwoods	0	155	0	0	155	0	202	202	357	64
Total softwoods	2,964	2,826	57	43	5,890	909	4,864	5,773	11,663	11
Sugar maple	2,846	1,805	34	419	5,104	56	886	942	6,046	15
Red maple	7,740	7,553	39	41	15,373	340	2,124	2,464	17,837	10
Yellow birch	2,407	2,663	67	0	5,137	139	2,774	2,913	8,050	13
Paper birch	2,486	1,029	22	0	3,537	34	1,720	1,754	5,291	18
Gray birch	272	82	0	0	354	0	174	174	528	44
Beech	4,103	3,037	168	0	7,308	93	1,084	1,177	8,485	12
White ash	370	230	0	0	600	46	224	270	870	27
Black ash	132	0	0	0	132	0	0	0	132	59
Aspen	347	607	68	0	1,022	41	664	705	1,727	30
White oaks	187	71	0	0	258	34	0	34	292	34
Red oaks	868	716	0	44	1,628	101	655	756	2,384	20
Basswood	78	320	0	0	398	19	70	89	487	48
Elm	17	34	0	0	51	48	212	260	311	43
Other hardwoods[a]	511	1,122	0	80	1,713	163	744	907	2,620	21
Total hardwoods	22,364	19,269	398	584	42,615	1,114	11,331	12,445	55,060	5
Total, all species	25,328	22,095	455	627	48,505	2,023	16,195	18,218	66,723	5
Sampling error (percent)	8	7	28	52	6	21	8	8	5	

[a]Includes noncommercial hardwoods.

Table 10.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, New Hampshire, 1983

(In millions of stems)

Species and browse preference class	Stand-size class				All classes	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Canad yew	25.3	.0	.0	.0	25.3	s[a]
Northern white-cedar	5.6	.0	.0	.0	5.6	0
Eastern hemlock	507.2	119.7	27.0	.0	653.9	18
Striped maple	1,094.2	429.1	43.1	.0	1,566.4	3
Red maple	1,372.1	1,033.1	292.9	.0	2,698.1	17
Mountain maple	639.0	378.4	30.2	.0	1,047.6	11
Apple	4.5	11.8	11.9	.0	28.2	45
Smooth sumac	2.9	12.5	.0	.0	15.4	s
Staghorn sumac	10.8	.0	3.0	.0	13.8	s
Mountain ash	42.4	87.2	2.0	.0	131.6	s
Hobblebush viburnum	1,118.4	268.6	59.7	.0	1,446.7	s
Total readily browsed	4,822.4	2,340.4	469.8	.0	7,632.6	
Balsam fir	1,241.1	1,527.7	106.5	.0	2,875.3	17
Common juniper	90.6	207.4	6.0	.0	304.0	s
White pine	529.4	125.2	36.8	.0	691.4	23
Sugar maple	1,226.3	846.8	195.2	.0	2,268.3	7
Shadbush	264.9	88.0	5.4	.0	358.3	s
Yellow birch	492.5	193.3	91.4	.0	777.2	15
Black birch	92.5	29.3	.0	.0	121.8	25
Paper birch	339.4	464.5	62.5	.0	866.4	17
Red-Osier dogwood	14.2	88.4	34.6	.0	137.2	s
Hawthorn	24.3	8.7	4.0	.0	37.0	0
American hazelnut	225.0	141.9	30.0	.0	396.9	s
Beaked hazelnut	172.7	99.2	37.5	.0	309.4	s
Beech	1,000.3	294.6	90.7	.0	1,385.6	11
White ash	486.3	206.5	15.2	.0	708.0	6
Black ash	22.5	10.2	2.0	.0	34.7	17
Winterberry	39.8	56.0	.0	.0	95.8	s
Honeysuckle	110.8	31.1	66.9	.0	208.8	s
Mountain holly	.0	26.4	.0	.0	26.4	s
Balsam poplar	10.9	12.2	.0	.0	23.1	0
Bigtooth aspen	4.5	19.4	7.8	.0	31.7	0
Quaking aspen	107.2	77.4	75.7	.0	260.3	13
Pin cherry	205.2	72.8	158.6	.0	436.6	4
Black cherry	250.7	126.8	149.0	.0	526.5	3
Chokecherry	37.7	127.9	42.6	.0	208.2	s
White oak	129.2	52.4	1.5	.0	183.1	12
Roses	6.5	.0	4.2	.0	10.7	s
Brambles	1,755.8	2,014.1	1,196.6	.0	4,966.5	s
Willows	15.4	27.4	3.1	.0	45.9	23
Common elderberry	34.8	16.5	12.2	.0	63.5	s
Red-berried elder	74.7	.0	2.0	.0	76.7	s
American elm	22.4	26.1	3.3	.0	51.8	14
Blueberries	1,038.0	954.6	322.2	.0	2,314.8	s
Sweetfern	73.8	43.2	.0	.0	117.0	s
Maple-leaf viburnum	207.5	96.1	25.4	.0	329.0	s
Wild raisin	156.7	46.9	29.4	.0	233.0	s
Small cranberry	13.7	1.1	.0	.0	14.8	s
Total commonly browsed	10,517.3	8,160.1	2,818.3	.0	21,495.7	

Table 10.--Continued

(In millions of stems)

Species and browse preference class	Stand-size class				All classes	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Tamarack	1.8	4.1	.0	.0	5.9	31
White spruce	11.8	3.7	.0	.0	15.5	61
Black spruce	1.5	5.4	.0	.0	6.9	22
Red spruce	506.1	451.3	86.6	.0	1,044.0	14
Pitch pine	.0	7.2	.0	.0	7.2	74
Speckled alder	149.3	116.8	109.1	.0	375.2	s
Black chokecherry	1.4	1.4	46.6	.0	49.4	s
Gray birch	110.8	82.8	177.1	.0	370.7	27
Lambkill	118.3	111.1	28.4	.0	257.8	s
Labrador tea	.0	.0	17.6	.0	17.6	s
Eastern hophornbeam	48.0	34.2	21.4	.0	103.6	28
Red oak	441.1	206.9	225.6	.0	873.6	7
Spiraea	302.9	539.4	356.6	.0	1,198.9	s
Total infrequently browsed	1,693.0	1,564.3	1,069.0	.0	4,326.3	
Witch-hazel	222.7	165.9	52.5	.0	441.1	s
Gooseberries	13.9	40.5	6.1	.0	60.5	s
Total questionable	236.6	206.4	58.6	.0	501.6	
Other species	878.9	688.0	273.7	.0	1,840.6	
Total all species	18,148.2	12,959.2	4,689.4	.0	35,796.8	
Sampling error (percent)	6	10	20	-	4.1	

[a]Classed as shrub species.

Table 11.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, New Hampshire, 1983

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Canada yew	11.1	.0	.0	.0	5.6	.0	8.6	.0	25.3
Northern white-cedar	.0	5.6	.0	.0	.0	.0	.0	.0	5.6
Eastern hemlock	458.5	11.8	.0	18.6	22.4	.0	133.9	8.7	653.9
Striped maple	133.7	90.4	.0	.0	56.0	.0	1,238.0	48.3	1,566.4
Red maple	939.7	239.7	25.7	55.6	318.7	4.1	955.0	159.6	2,698.1
Mountain maple	.0	195.7	.0	.0	3.0	.0	766.3	82.6	1,047.6
Apple	10.0	2.0	.0	.0	.0	.0	6.4	9.8	28.2
Smooth sumac	1.4	.0	.0	.0	1.4	.0	12.6	.0	15.4
Staghorn sumac	9.1	.0	.0	.0	.0	1.7	3.0	.0	13.8
Mountain ash	9.5	104.6	.0	.0	.0	.0	15.7	1.8	131.6
Hobblebush viburnum	3.5	175.2	.0	4.5	4.4	.0	1,202.4	56.7	1,446.7
Total readily browsed	1,576.5	825.0	25.7	78.7	411.5	5.8	4,341.9	367.5	7,632.6
Balsam fir	224.8	1,784.1	.0	5.9	22.4	.0	624.0	214.1	2,875.3
Common juniper	56.5	.0	1.5	20.1	204.4	.0	21.5	.0	304.0
White pine	431.7	2.0	6.8	33.5	69.5	.0	134.0	13.9	691.4
Sugar maple	268.0	20.2	.0	10.2	67.7	.0	1,826.7	75.5	2,268.3
Shadbush	112.1	3.5	.0	1.5	143.0	.0	93.8	4.4	358.3
Yellow birch	123.6	135.5	.0	2.9	21.9	.0	491.2	2.1	777.2
Black birch	85.2	.0	1.5	.0	20.5	.0	14.6	.0	121.8
Paper birch	217.5	259.2	.0	6.5	57.5	.0	279.1	46.6	866.4
Red-Osier dogwood	8.7	37.8	.0	.0	4.0	63.0	9.9	13.8	137.2
Hawthorn	1.5	.0	.0	.0	14.1	.0	21.4	.0	37.0
American hazelnut	54.0	112.2	.0	10.5	51.1	26.0	141.3	1.8	396.9
Beaked hazelnut	25.1	92.0	.0	55.5	97.1	.0	35.9	3.8	309.4
Beech	88.4	5.6	.0	3.3	45.2	.0	1,236.3	6.8	1,385.6
White ash	217.0	10.5	.0	19.6	58.5	3.4	288.7	110.3	708.0
Black ash	6.9	16.2	.0	.0	4.2	.0	7.4	.0	34.7
Winterberry	19.5	.0	.0	.0	.0	.0	76.3	.0	95.8
Honeysuckle	40.7	45.6	.0	.0	7.2	.0	111.6	3.7	208.8
Mountain holly	16.8	.0	.0	.0	5.8	.0	3.8	.0	26.4
Balsam poplar	.0	10.9	.0	.0	.0	.0	12.2	.0	23.1
Bigtooth aspen	1.5	2.0	3.0	.0	18.9	.0	6.3	.0	31.7
Quaking aspen	103.6	17.1	.0	11.0	7.9	.0	73.4	47.3	260.3
Pin cherry	53.8	61.8	.0	.0	26.9	1.3	286.2	6.6	436.6
Black cherry	188.1	13.5	64.8	11.7	74.1	.0	149.0	25.3	526.5
Chokecherry	49.1	23.0	.0	.0	34.4	.0	58.3	43.4	208.2
White oak	86.5	.0	13.4	1.5	63.7	.0	18.0	.0	183.1

Table 11.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Roses	8.7	.0	.0	.0	.0	.0	2.0	.0	10.7
Brambles	694.1	1,170.8	31.3	1.4	144.6	16.4	2,659.1	248.8	4,966.5
Willows	4.5	30.4	.0	.0	.0	.0	.0	11.0	45.9
Common elderberry	3.0	9.8	.0	.0	14.4	.0	36.3	.0	63.5
Red-berried elder	.0	2.0	.0	.0	.0	.0	74.7	.0	76.7
American elm	15.8	10.5	.0	.0	2.0	1.7	.0	21.8	51.8
Blueberries	808.7	514.2	51.2	94.7	634.2	.0	159.0	52.8	2,314.8
Sweetfern	30.4	.0	28.4	.0	8.5	.0	49.7	.0	117.0
Maple-leaf viburnum	90.8	.0	43.2	4.5	151.4	.0	34.6	4.5	329.0
Wild raisin	71.9	53.2	.0	.0	69.5	.0	14.3	24.1	233.0
Small cranberry	.0	14.8	.0	.0	.0	.0	.0	.0	14.8
Total commonly browsed	4,208.5	4,458.4	245.1	294.3	2,144.6	111.8	9,050.6	982.4	21,495.7
Tamarack	.0	5.9	.0	.0	.0	.0	.0	.0	5.9
White spruce	.0	11.7	.0	.0	.0	.0	3.8	.0	15.5
Black spruce	.0	5.4	.0	.0	.0	.0	1.5	.0	6.9
Red spruce	72.6	669.3	.0	.0	1.4	.0	252.4	48.3	1,044.0
Pitch pine	.0	.0	5.7	.0	1.5	.0	.0	.0	7.2
Speckled alder	107.2	97.0	.0	.0	.0	18.3	120.6	32.1	375.2
Black chokecherry	48.0	.0	.0	.0	1.4	.0	.0	.0	49.4
Gray birch	109.5	19.0	41.9	10.4	51.3	9.5	50.6	78.5	370.7
Lambkill	69.1	26.6	52.0	17.7	2.9	2.4	87.1	.0	257.8
Labrador tea	.0	17.6	.0	.0	.0	.0	.0	.0	17.6
Eastern hophornbeam	28.3	2.0	.0	.0	15.4	.0	57.9	.0	103.6
Red oak	358.1	.0	255.6	23.2	75.0	3.3	128.6	29.8	873.6
Spiraea	505.3	156.0	14.9	3.0	48.1	143.4	249.2	79.0	1,198.9
Total infrequently browsed	1,298.1	1,010.5	370.1	54.3	197.0	176.9	951.7	267.7	4,326.3
Witch-hazel	154.2	.0	.0	27.1	100.4	.0	156.4	3.0	441.1
Gooseberries	2.1	23.3	.0	.0	4.3	.0	30.8	.0	60.5
Total questionable	156.3	23.3	.0	27.1	104.7	.0	187.2	3.0	501.6
Other species	825.0	212.7	20.2	90.6	181.9	50.6	428.4	31.2	1,840.6
Total all species	8,064.4	6,529.9	661.1	545.0	3,039.7	345.1	14,959.8	1,651.8	35,796.8
Sampling error (percent)	10	15	49	38	17	62	9	26	4.1

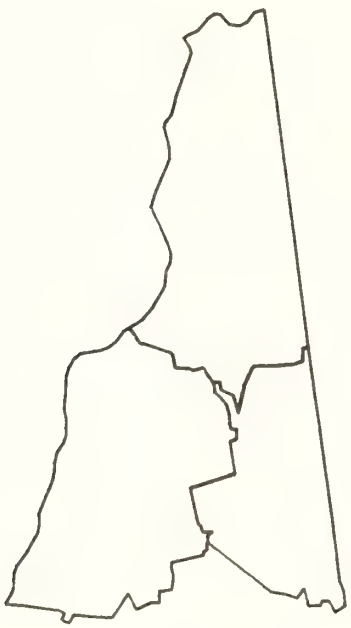
Table 12.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, New Hampshire, 1983

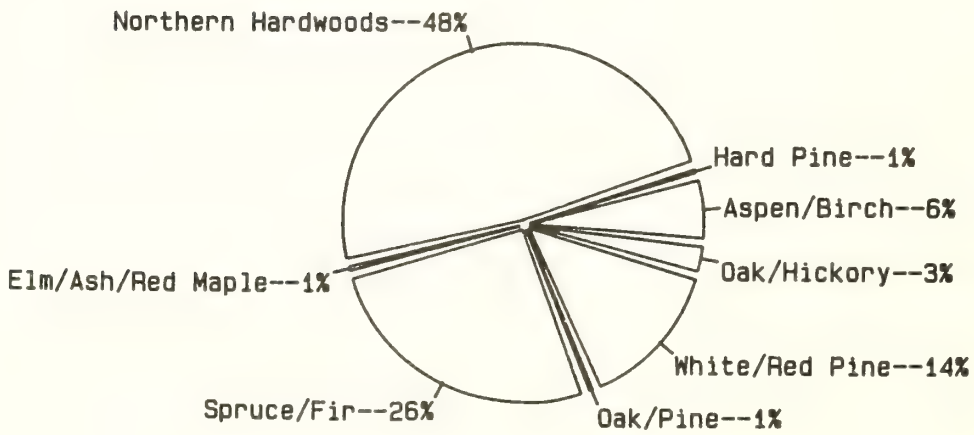
Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Canada yew	25.3	.0	.0	.0	25.3	60
Northern white-cedar	5.6	.0	.0	.0	5.6	73
Eastern hemlock	648.0	.0	5.9	.0	653.9	12
Striped maple	1,288.1	171.7	81.0	25.6	1,566.4	11
Red maple	2,271.6	229.6	176.3	20.6	2,698.1	7
Mountain maple	805.5	160.6	63.0	18.5	1,047.6	15
Apple	28.2	.0	.0	.0	28.2	53
Smooth sumac	15.4	.0	.0	.0	15.4	82
Staghorn sumac	13.8	.0	.0	.0	13.8	59
Mountain ash	119.4	.0	12.2	.0	131.6	39
Hobblebush viburnum	983.6	335.6	80.9	46.6	1,446.7	14
Total readily browsed	6,204.5	897.5	419.3	111.3	7,632.6	5
Balsam fir	2,808.0	35.7	29.4	2.2	2,875.3	13
Common juniper	301.0	3.0	.0	.0	304.0	50
White pine	677.1	12.3	2.0	.0	691.4	15
Sugar maple	1,966.3	260.6	28.1	13.3	2,268.3	15
Shadbush	311.5	38.4	.0	8.4	358.3	28
Yellow birch	580.8	151.0	45.4	.0	777.2	15
Black birch	118.8	3.0	.0	.0	121.8	35
Paper birch	673.1	146.0	19.9	27.4	866.4	15
Red-Osier dogwood	116.4	.0	20.8	.0	137.2	43
Hawthorn	37.0	.0	.0	.0	37.0	42
American hazelnut	347.6	45.5	3.8	.0	396.9	29
Beaked hazelnut	191.0	75.1	.0	43.3	309.4	32
Beech	1,307.8	47.0	29.0	1.8	1,385.6	12
White ash	567.1	125.5	15.4	.0	708.0	14
Black ash	34.7	.0	.0	.0	34.7	35
Winterberry	83.4	7.8	.0	4.6	95.8	62
Honeysuckle	203.1	5.7	.0	.0	208.8	28
Mountain holly	8.2	1.4	.0	16.8	26.4	69
Balsam poplar	14.4	.0	8.7	.0	23.1	71
Bigtooth aspen	21.7	10.0	.0	.0	31.7	41
Quaking aspen	206.0	42.6	2.1	9.6	260.3	19
Pin cherry	388.6	45.0	3.0	.0	436.6	26
Black cherry	499.5	17.3	7.9	1.8	526.5	14
Chokecherry	202.2	2.0	4.0	.0	208.2	30
White oak	163.2	6.7	10.1	3.1	183.1	23
Roses	7.2	3.5	.0	.0	10.7	54
Brambles	4,839.1	45.1	82.3	.0	4,966.5	19
Willows	45.9	.0	.0	.0	45.9	41
Common elderberry	46.0	17.5	.0	.0	63.5	38
Red-berried elder	64.7	.0	10.0	2.0	76.7	68
American elm	51.8	.0	.0	.0	51.8	36
Blueberries	2,090.9	146.4	59.3	18.2	2,314.8	20
Sweetfern	109.7	1.4	5.9	.0	117.0	36
Maple-leaf viburnum	306.1	22.9	.0	.0	329.0	29
Wild raisin	201.0	32.0	.0	.0	233.0	29
Small cranberry	14.8	.0	.0	.0	14.8	93
Total commonly browsed	19,605.7	1,350.4	387.1	152.5	21,495.7	6

Table 12.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Tamarack	5.9	.0	.0	.0	5.9	76
White spruce	15.5	.0	.0	.0	15.5	51
Black spruce	6.9	.0	.0	.0	6.9	81
Red spruce	1,012.0	8.4	21.6	2.0	1,044.0	18
Pitch pine	7.2	.0	.0	.0	7.2	82
Speckled alder	352.2	14.0	9.0	.0	375.2	30
Black chokecherry	49.4	.0	.0	.0	49.4	94
Gray birch	276.4	36.2	41.7	16.4	370.7	24
Lambkill	257.8	.0	.0	.0	257.8	31
Labrador tea	17.6	.0	.0	.0	17.6	100
Eastern hophornbeam	103.6	.0	.0	.0	103.6	25
Red oak	807.2	28.2	35.2	3.0	873.6	23
Spiraea	1,070.4	79.9	.0	48.6	1,198.9	20
Total infrequently browsed	3,982.1	166.7	107.5	70.0	4,326.3	10
Witch-hazel	402.7	9.3	29.1	.0	441.1	19
Gooseberries	60.5	.0	.0	.0	60.5	31
Total questionable	463.2	9.3	29.1	.0	501.6	17
Other species	1,712.6	83.8	13.7	30.5	1,840.6	13
Total all species	31,968.1	2,507.7	956.7	364.3	35,796.8	4.1
Sampling error (percent)	5	10	15	27	4.1	

NORTHERN UNIT TABLES





Area of timberland by type group

Table 13.--Area of timberland by forest type, forest-type group, and stand-size class, Northern Unit, New Hampshire, 1983

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	9.7	.0	7.0	.0	16.7
White pine	108.6	39.1	19.5	.0	167.2
White pine/hemlock	99.1	28.4	.0	.0	127.5
Hemlock	28.9	.0	.0	.0	28.9
White/red pine group	246.3	67.5	26.5	.0	340.3
Balsam fir	78.2	118.7	9.7	.0	206.6
Red spruce	19.4	60.6	9.7	.0	89.7
Red spruce/balsam fir	183.9	104.8	20.4	.0	309.1
White spruce	29.8	.0	.0	.0	29.8
Tamarack	.0	8.9	.0	.0	8.9
Spruce/fir group	311.3	293.0	39.8	.0	644.1
Pitch pine	9.4	9.3	8.3	.0	27.0
Hard pine group	9.4	9.3	8.3	.0	27.0
Wh. pine/no. red oak/wh. ash	20.4	.0	.0	.0	20.4
Oak/pine group	20.4	.0	.0	.0	20.4
Northern red oak	29.3	38.7	9.8	.0	77.8
Oak/hickory group	29.3	38.7	9.8	.0	77.8
Black ash/Amer. elm/red maple	8.1	.0	8.6	.0	16.7
Elm/ash/red maple group	8.1	.0	8.6	.0	16.7
Sugar maple/beech/yellow birch	592.5	166.5	38.1	.0	797.1
Black cherry	10.1	.0	.0	.0	10.1
Red maple/northern hardwoods	88.2	139.6	10.0	.0	237.8
Pin cherry/reverting field	.0	20.1	8.9	.0	29.0
Mixed northern hardwoods	76.1	50.3	9.7	.0	136.1
Northern hardwoods group	766.9	376.5	66.7	.0	1,210.1
Aspen	29.4	47.5	10.1	.0	87.0
Paper birch	18.8	48.0	.0	.0	66.8
Aspen/birch group	48.2	95.5	10.1	.0	153.8
All forest types	1,439.9	880.5	169.8	.0	2,490.2

Table 14.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Northern Unit, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	8,262	6,924	5,558	2,673	2,055	1,117	690	206	260	22	27,767	14
Butternut	0	0	0	0	47	23	0	23	21	0	114	84
Apple	842	302	154	0	0	0	0	0	20	0	1,318	60
Eastern hophornbeam	140	350	33	79	51	0	0	0	0	0	653	39
Pin cherry	648	47	0	0	0	0	0	0	0	0	695	63
Black cherry	1,807	990	742	368	134	23	0	0	0	0	4,064	26
White oak	252	0	0	0	83	0	0	0	16	0	351	75
Northern red oak	7,729	5,313	2,648	1,223	723	599	330	74	49	13	18,701	22
Mountain ash	1,278	91	159	24	0	0	0	0	0	0	1,552	36
Total, all species	20,958	14,017	9,294	4,367	3,093	1,762	1,020	303	366	35	55,215	10.1
Sampling error (percent)	14	15	14	16	16	17	24	35	27	73	10.1	

Table 15.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Northern Unit, New Hampshire, 1983

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	286,139	426,646	2,802,966	13,973	3,529,724
Saplings	82,129	573,575	4,209	0	659,913
Total sawtimber	368,268	1,000,221	2,807,175	13,973	4,189,637
Poletimber:					
Shrubs	128,309	488,149	2,799,856	58,387	3,474,701
Saplings	27,753	590,947	30,242	0	648,942
Total poletimber	156,062	1,079,096	2,830,098	58,387	4,123,643
Sapling/seedling:					
Shrubs	67,348	376,519	1,314,895	46,362	1,805,124
Saplings	10,779	121,787	16,536	0	149,102
Total sapling/seedling	78,127	498,306	1,331,431	46,362	1,954,226
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	602,457	2,577,623	6,968,704	118,722	10,267,506

Table 16.--Number of standing dead trees on timberland by species, condition, and diameter class, Northern Unit, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	6,917	432	96	7,445	14,031	983	135	15,149	22,594	16
Tamarack	512	46	0	558	41	23	0	64	622	65
White spruce	100	0	0	100	0	0	0	0	100	100
Black spruce	0	0	0	0	182	0	0	182	182	100
Red spruce	8,196	411	75	8,682	4,787	419	150	5,356	14,038	19
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	1,298	21	43	1,362	1,371	131	144	1,646	3,008	30
Northern white-cedar	238	23	0	261	372	0	0	372	633	79
Hemlock	297	21	0	318	274	107	28	409	727	48
Other softwoods	0	0	0	0	258	22	0	280	280	87
Total softwoods	17,558	954	214	18,726	21,316	1,685	457	23,458	42,184	12
Sugar maple	130	105	0	235	310	238	106	654	889	38
Red maple	369	0	0	369	1,514	211	108	1,833	2,202	27
Yellow birch	983	158	48	1,189	3,821	852	755	5,428	6,617	15
Paper birch	576	23	0	599	1,720	285	56	2,061	2,660	25
Gray birch	414	0	0	414	837	0	0	837	1,251	43
Beech	230	0	61	291	511	408	363	1,282	1,573	23
White ash	184	0	0	184	0	0	0	0	184	49
Black ash	46	0	0	46	0	0	0	0	46	100
Aspen	1,067	250	0	1,317	2,647	169	21	2,837	4,154	25
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	23	23	310	0	15	325	348	66
Basswood	0	0	19	19	0	70	0	70	89	81
Elm	172	0	21	193	146	93	96	335	528	51
Other hardwoods[a]	2,015	0	0	2,015	1,604	23	20	1,647	3,662	35
Total hardwoods	6,186	536	172	6,894	13,420	2,349	1,540	17,309	24,203	9
Total, all species	23,744	1,490	386	25,620	34,736	4,034	1,997	40,767	66,387	7.9
Sampling error (percent)	13	20	29	12	9	14	14	8	7.9	

[a] Includes noncommercial hardwoods.

Table 17.--Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition, Northern Unit, New Hampshire, 1983

Species	Live				Total live	Dead		Total dead	Total all trees	Sampling error
	No cull	Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	995	199	0	43	1,237	204	1,300	1,504	2,741	21
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	167	67	0	0	234	82	693	775	1,009	33
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	137	44	23	0	204	70	492	562	766	40
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	243	167	0	0	410	43	172	215	625	32
Other softwoods	0	141	0	0	141	0	176	176	317	71
Total softwoods	1,542	618	23	43	2,226	399	2,833	3,232	5,458	15
Sugar maple	1,923	911	0	46	2,880	22	590	612	3,492	20
Red maple	3,643	1,802	22	41	5,508	195	640	835	6,343	19
Yellow birch	1,505	1,832	23	0	3,360	89	2,094	2,183	5,543	15
Paper birch	1,307	454	22	0	1,783	0	577	577	2,360	31
Gray birch	207	46	0	0	253	0	39	39	292	74
Beech	2,617	1,223	116	0	3,956	38	885	923	4,879	15
White ash	320	113	0	0	433	46	0	46	479	40
Black ash	46	0	0	0	46	0	0	0	46	100
Aspen	330	195	68	0	593	41	628	669	1,262	33
White oaks	0	37	0	0	37	0	0	0	37	71
Red oaks	0	28	0	0	28	0	324	324	352	66
Basswood	11	0	0	0	11	19	70	89	100	73
Elm	0	0	0	0	0	0	167	167	167	73
Other hardwoods[a]	173	356	0	46	575	95	407	502	1,077	28
Total hardwoods	12,082	6,997	251	133	19,463	545	6,421	6,966	26,429	8
Total, all species	13,624	7,615	274	176	21,689	944	9,254	10,198	31,887	6.9
Sampling error (percent)	11	11	36	50	8	31	10	10	6.9	

[a] Includes noncommercial hardwoods.

Table 18.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Northern Unit, New Hampshire, 1983

(In millions of stems)

Species and browse preference class	Stand-size class				All classes	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Northern white-cedar	5.6	.0	.0	.0	5.6	0
Eastern hemlock	178.7	26.6	1.8	.0	207.1	12
Striped maple	764.8	309.9	43.1	.0	1,117.8	2
Red maple	531.7	454.1	87.8	.0	1,073.6	17
Mountain maple	557.3	367.6	30.2	.0	955.1	1
Apple	.0	11.8	2.0	.0	13.8	72
Staghorn sumac	3.6	.0	.0	.0	3.6	s[a]
Mountain ash	40.9	87.2	2.0	.0	130.1	s
Hobblebush viburnum	1,033.5	208.6	59.7	.0	1,301.8	s
Total readily browsed	3,116.1	1,465.8	226.6	.0	4,808.5	
Balsam fir	1,111.9	1,483.7	106.5	.0	2,702.1	17
White pine	80.6	52.5	1.8	.0	134.9	31
Sugar maple	1,003.2	591.2	141.1	.0	1,735.5	7
Shadbush	65.8	13.7	4.0	.0	83.5	s
Yellow birch	317.5	127.1	89.9	.0	534.5	14
Paper birch	210.1	332.6	48.1	.0	590.8	19
Red-Osier dogwood	4.0	37.8	20.8	.0	62.6	s
Hawthorn	14.2	.0	4.0	.0	18.2	0
American hazelnut	179.2	95.0	30.0	.0	304.2	s
Beaked hazelnut	107.0	33.3	37.5	.0	177.8	s
Beech	734.0	231.6	89.2	.0	1,054.8	9
White ash	244.7	130.8	15.2	.0	390.7	5
Black ash	18.3	.0	2.0	.0	20.3	0
Winterberry	9.5	.0	.0	.0	9.5	s
Honeysuckle	75.4	31.1	32.2	.0	138.7	s
Mountain holly	.0	3.8	.0	.0	3.8	s
Balsam poplar	10.9	12.2	.0	.0	23.1	0
Bigtooth aspen	.0	12.0	.0	.0	12.0	0
Quaking aspen	47.9	45.1	43.0	.0	136.0	12
Pin cherry	172.8	53.7	108.6	.0	335.1	5
Black cherry	66.7	77.3	93.6	.0	237.6	3
Chokecherry	9.3	93.5	5.8	.0	108.6	s
White oak	7.7	2.0	.0	.0	9.7	21
Roses	2.0	.0	.0	.0	2.0	s
Brambles	1,292.3	1,797.0	1,019.8	.0	4,109.1	s
Willows	10.9	27.4	.0	.0	38.3	23
Common elderberry	31.8	2.1	12.2	.0	46.1	s
Red-berried elder	70.4	.0	2.0	.0	72.4	s
American elm	13.9	3.9	1.8	.0	19.6	0
Blueberries	74.7	478.9	112.6	.0	666.2	s
Sweetfern	34.3	25.6	.0	.0	59.9	s
Maple-leaf viburnum	35.7	41.1	4.0	.0	80.8	s
Wild raisin	45.7	14.3	29.4	.0	89.4	s
Small cranberry	13.7	1.1	.0	.0	14.8	s
Total commonly browsed	6,116.1	5,851.4	2,055.1	.0	14,022.6	

Table 18.--Continued

(In millions of stems)

Species and browse preference class	Stand-size class				All classes	Percent daplings
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Tamarack	1.8	4.1	.0	.0	5.9	31
White spruce	11.8	3.7	.0	.0	15.5	61
Black spruce	.0	5.4	.0	.0	5.4	0
Red spruce	459.0	390.6	86.6	.0	936.2	14
Pitch pine	.0	5.7	.0	.0	5.7	67
Speckled alder	106.3	68.9	92.5	.0	267.7	s
Gray birch	33.1	29.6	20.3	.0	83.0	31
Lambkill	68.2	84.7	26.1	.0	179.0	s
Labrador tea	.0	.0	17.6	.0	17.6	s
Eastern hophornbeam	21.3	24.5	14.2	.0	60.0	16
Red oak	153.6	82.0	185.2	.0	420.8	3
Spiraea	147.2	297.9	134.1	.0	579.2	s
Total infrequently browsed	1,002.3	997.1	576.6	.0	2,576.0	
Witch-hazel	28.6	2.2	21.9	.0	52.7	s
Gooseberries	7.4	37.6	6.1	.0	51.1	s
Total questionable	36.0	39.8	28.0	.0	103.8	
Other species	176.0	226.1	149.7	.0	551.8	
Total all species	10,446.5	8,580.2	3,036.0	.0	22,062.7	
Sampling error (percent)	9	13	28	-	5.7	

[a]Classed as shrub species.

Table 19.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Northern Unit, New Hampshire, 1983

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Northern white-cedar	.0	5.6	.0	.0	.0	.0	.0	.0	5.6
Eastern hemlock	128.1	11.8	.0	.0	7.8	.0	50.7	8.7	207.1
Striped maple	31.5	90.4	.0	.0	38.6	.0	910.4	46.9	1,117.8
Red maple	195.6	194.3	1.9	6.1	54.9	1.7	526.7	92.4	1,073.6
Mountain maple	.0	195.7	.0	.0	.0	.0	676.8	82.6	955.1
Apple	.0	2.0	.0	.0	.0	.0	2.0	9.8	13.8
Staghorn sumac	1.9	.0	.0	.0	.0	1.7	.0	.0	3.6
Mountain ash	9.5	104.6	.0	.0	.0	.0	14.2	1.8	130.1
Hobblebush viburnum	2.0	175.2	.0	.0	.0	.0	1,067.9	56.7	1,301.8
Total readily browsed	368.6	779.6	1.9	6.1	101.3	3.4	3,248.7	298.9	4,808.5
Balsam fir	164.3	1,773.7	.0	5.9	17.9	.0	527.7	212.6	2,702.1
White pine	75.4	2.0	3.8	5.9	10.1	.0	26.8	10.9	134.9
Sugar maple	103.1	20.2	.0	8.7	34.5	.0	1,510.3	58.7	1,735.5
Shadbush	47.5	2.0	.0	.0	4.0	.0	30.0	.0	83.5
Yellow birch	25.8	125.1	.0	.0	.0	.0	381.5	2.1	534.5
Paper birch	87.3	257.3	.0	6.5	2.0	.0	198.6	39.1	590.8
Red-Osier dogwood	.0	37.8	.0	.0	4.0	20.8	.0	.0	62.6
Hawthorn	.0	.0	.0	.0	4.0	.0	14.2	.0	18.2
American hazelnut	29.5	112.2	.0	.0	8.0	26.0	126.7	1.8	304.2
Beaked hazelnut	2.0	92.0	.0	.0	51.3	.0	28.7	3.8	177.8
Beech	33.1	4.1	.0	1.9	5.9	.0	1,004.4	5.4	1,054.8
White ash	52.5	10.5	.0	19.6	21.9	3.4	180.2	102.6	390.7
Black ash	4.1	16.2	.0	.0	.0	.0	.0	.0	20.3
Winterberry	.0	.0	.0	.0	.0	.0	9.5	.0	9.5
Honeysuckle	14.0	45.6	.0	.0	.0	.0	75.4	3.7	138.7
Mountain holly	.0	.0	.0	.0	.0	.0	3.8	.0	3.8
Balsam poplar	.0	10.9	.0	.0	.0	.0	12.2	.0	23.1
Bigtooth aspen	.0	2.0	.0	.0	10.0	.0	.0	.0	12.0
Quaking aspen	25.8	17.1	.0	6.5	2.0	.0	69.1	15.5	136.0
Pin cherry	26.2	61.8	.0	.0	1.7	.0	241.8	3.6	335.1
Black cherry	59.7	13.5	35.0	.0	47.8	.0	65.2	16.4	237.6
Chokecherry	9.9	23.0	.0	.0	.0	.0	32.3	43.4	108.6
White oak	9.7	.0	.0	.0	.0	.0	.0	.0	9.7
Roses	.0	.0	.0	.0	.0	.0	2.0	.0	2.0
Brambles	256.3	1,170.8	.0	.0	6.0	6.9	2,456.0	213.1	4,109.1
Willows	.0	30.4	.0	.0	.0	.0	.0	7.9	38.3
Common elderberry	.0	9.8	.0	.0	.0	.0	36.3	.0	46.1
Red-berried elder	.0	2.0	.0	.0	.0	.0	70.4	.0	72.4
American elm	.0	10.5	.0	.0	2.0	1.7	.0	5.4	19.6

Table 19.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Blueberries	11.5	493.6	42.3	.0	35.7	.0	36.3	46.8	666.2
Sweetfern	5.8	.0	28.4	.0	4.0	.0	21.7	.0	59.9
Maple-leaf viburnum	6.0	.0	.0	.0	43.1	.0	31.7	.0	80.8
Wild raisin	21.6	51.8	.0	.0	.0	.0	3.8	12.2	89.4
Small cranberry	.0	14.8	.0	.0	.0	.0	.0	.0	14.8
Total commonly browsed	1,071.1	4,410.7	109.5	55.0	315.9	58.8	7,196.6	805.0	14,022.6
Tamarack	.0	5.9	.0	.0	.0	.0	.0	.0	5.9
White spruce	.0	11.7	.0	.0	.0	.0	3.8	.0	15.5
Black spruce	.0	5.4	.0	.0	.0	.0	.0	.0	5.4
Red spruce	56.5	629.0	.0	.0	.0	.0	202.4	48.3	936.2
Pitch pine	.0	.0	5.7	.0	.0	.0	.0	.0	5.7
Speckled alder	60.2	88.1	.0	.0	.0	1.7	87.1	30.6	267.7
Gray birch	15.7	14.5	15.1	.0	9.9	.0	17.8	10.0	83.0
Lambkill	19.0	26.6	52.0	.0	.0	.0	81.4	.0	179.0
Labrador tea	.0	17.6	.0	.0	.0	.0	.0	.0	17.6
Eastern hophornbeam	11.6	2.0	.0	.0	2.0	.0	44.4	.0	60.0
Red oak	75.4	.0	251.1	3.9	18.0	3.3	64.8	4.3	420.8
Spiraea	228.7	156.0	.0	.0	10.0	1.7	139.5	43.3	579.2
Total infrequently browsed	467.1	956.8	323.9	3.9	39.9	6.7	641.2	136.5	2,576.0
Witch-hazel	21.0	.0	.0	.0	24.1	.0	7.6	.0	52.7
Gooseberries	.0	23.3	.0	.0	.0	.0	27.8	.0	51.1
Total questionable	21.0	23.3	.0	.0	24.1	.0	35.4	.0	103.8
Other species	131.5	212.7	3.8	8.3	.0	21.5	157.7	16.3	551.8
Total all species	2,059.3	6,383.1	439.1	73.3	481.2	90.4	11,279.6	1,256.7	22,062.7
Sampling error (percent)	21	15	65	74	39	75	11	31	5.7

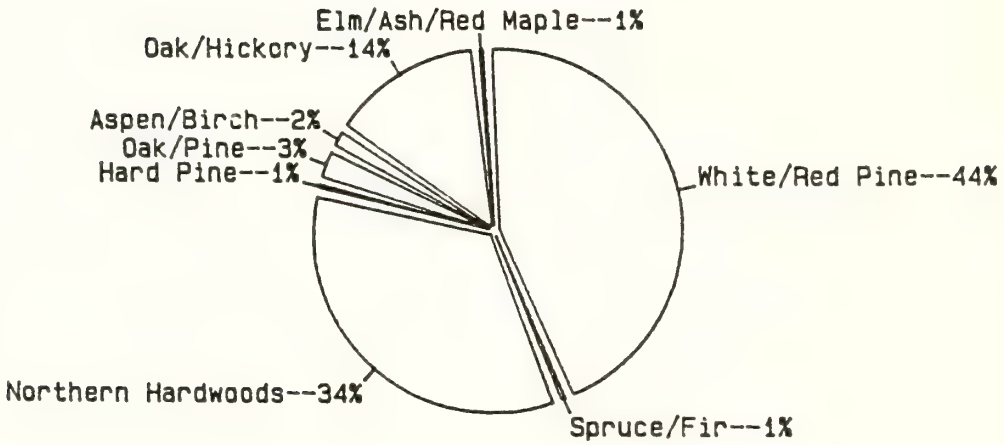
Table 20.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Northern Unit, New Hampshire, 1983

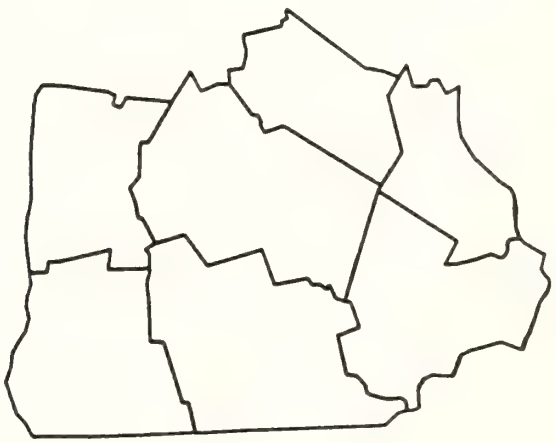
Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Northern white-cedar	5.6	.0	.0	.0	5.6	73
Eastern hemlock	201.2	.0	5.9	.0	207.1	25
Striped maple	912.1	140.8	39.3	25.6	1,117.8	13
Red maple	889.3	92.2	90.1	2.0	1,073.6	12
Mountain maple	716.1	157.5	63.0	18.5	955.1	16
Apple	13.8	.0	.0	.0	13.8	73
Staghorn sumac	3.6	.0	.0	.0	3.6	71
Mountain ash	117.9	.0	12.2	.0	130.1	39
Hobblebush viburnum	903.3	271.0	80.9	46.6	1,301.8	14
Total readily browsed	3,762.9	661.5	291.4	92.7	4,808.5	7
Balsam fir	2,654.8	34.3	10.8	2.2	2,702.1	13
White pine	130.9	2.0	2.0	.0	134.9	21
Sugar maple	1,538.2	178.6	5.4	13.3	1,735.5	18
Shadbush	83.5	.0	.0	.0	83.5	45
Yellow birch	397.1	97.8	39.6	.0	534.5	17
Paper birch	455.7	103.1	7.6	24.4	590.8	19
Red-Osier dogwood	41.8	.0	20.8	.0	62.6	59
Hawthorn	18.2	.0	.0	.0	18.2	71
American hazelnut	278.2	26.0	.0	.0	304.2	37
Beaked hazelnut	120.5	14.0	.0	43.3	177.8	41
Beech	1,024.6	12.5	15.9	1.8	1,054.8	15
White ash	287.1	92.6	11.0	.0	390.7	21
Black ash	20.3	.0	.0	.0	20.3	45
Winterberry	9.5	.0	.0	.0	9.5	100
Honeysuckle	133.0	5.7	.0	.0	138.7	30
Mountain holly	3.8	.0	.0	.0	3.8	100
Balsam poplar	14.4	.0	8.7	.0	23.1	71
Bigtooth aspen	2.0	10.0	.0	.0	12.0	85
Quaking aspen	114.9	19.0	2.1	.0	136.0	24
Pin cherry	304.8	30.3	.0	.0	335.1	31
Black cherry	216.3	11.6	7.9	1.8	237.6	22
Chokecherry	102.6	2.0	4.0	.0	108.6	45
White oak	6.0	3.7	.0	.0	9.7	60
Roses	.0	2.0	.0	.0	2.0	100
Brambles	3,981.7	45.1	82.3	.0	4,109.1	22
Willows	38.3	.0	.0	.0	38.3	49
Common elderberry	28.6	17.5	.0	.0	46.1	41
Red-berried elder	60.4	.0	10.0	2.0	72.4	72
American elm	19.6	.0	.0	.0	19.6	44
Blueberries	554.5	111.7	.0	.0	666.2	41
Sweetfern	59.9	.0	.0	.0	59.9	55
Maple-leaf viburnum	68.0	12.8	.0	.0	80.8	46
Wild raisin	69.3	20.1	.0	.0	89.4	43
Small cranberry	14.8	.0	.0	.0	14.8	93
Total commonly browsed	12,853.3	852.4	228.1	88.8	14,022.6	8

Table 20.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Tamarack	5.9	.0	.0	.0	5.9	76
White spruce	15.5	.0	.0	.0	15.5	51
Black spruce	5.4	.0	.0	.0	5.4	100
Red spruce	904.2	8.4	21.6	2.0	936.2	20
Pitch pine	5.7	.0	.0	.0	5.7	100
Speckled alder	258.7	.0	9.0	.0	267.7	40
Gray birch	76.5	6.5	.0	.0	83.0	32
Lambkill	179.0	.0	.0	.0	179.0	40
Labrador tea	17.6	.0	.0	.0	17.6	100
Eastern hophornbeam	60.0	.0	.0	.0	60.0	37
Red oak	410.4	2.0	8.4	.0	420.8	45
Spiraea	526.3	52.9	.0	.0	579.2	28
Total infrequently browsed	2,465.2	69.8	39.0	2.0	2,576.0	14
Witch-hazel	39.7	.0	13.0	.0	52.7	51
Gooseberries	51.1	.0	.0	.0	51.1	36
Total questionable	90.8	.0	13.0	.0	103.8	31
Other species	518.3	21.9	7.8	3.8	551.8	22
Total all species	19,690.5	1,605.6	579.3	187.3	22,062.7	5.7
Sampling error (percent)	6	13	20	42	5.7	

SOUTHERN UNIT TABLES





Area of timberland by type group

Table 21.--Area of timberland by forest type, forest-type group, and stand-size class, Southern Unit, New Hampshire, 1983

(In thousands of acres)

Forest type and forest-type group	Stand-size class				All classes
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked	
Red pine	14.5	.0	.0	.0	14.5
White pine	535.8	53.7	55.0	.0	644.5
White pine/hemlock	158.8	49.7	14.4	.0	222.9
Hemlock	111.9	14.5	7.4	.0	133.8
White/red pine group	821.0	117.9	76.8	.0	1,015.7
Red spruce	14.7	11.5	.0	.0	26.2
Red spruce/balsam fir	.0	7.3	.0	.0	7.3
Spruce/fir group	14.7	18.8	.0	.0	33.5
Pitch pine	.0	7.4	7.3	.0	14.7
Hard pine group	.0	7.4	7.3	.0	14.7
Wh. pine/no. red oak/wh. ash	35.6	29.2	7.3	.0	72.1
Other oak/pine	.0	7.4	.0	.0	7.4
Oak/pine group	35.6	36.6	7.3	.0	79.5
Post, black, or bear oak	22.0	.0	.0	.0	22.0
Chestnut oak	7.1	.0	.0	.0	7.1
White oak/red oak/hickory	14.6	14.3	.0	.0	28.9
White oak	14.5	.0	.0	.0	14.5
Northern red oak	70.9	72.3	.0	.0	143.2
Scarlet oak	.0	14.2	.0	.0	14.2
Red maple/central hardwoods	7.3	28.9	.0	.0	36.2
Mixed central hardwoods	36.6	14.7	.0	.0	51.3
Oak/hickory group	173.0	144.4	.0	.0	317.4
Black ash/Amer. elm/red maple	.0	6.7	8.9	.0	15.6
Elm/ash/red maple group	.0	6.7	8.9	.0	15.6
Sugar maple/beech/yellow birch	188.1	108.7	6.7	.0	303.5
Black cherry	.0	.0	7.0	.0	7.0
Red maple/northern hardwoods	131.7	123.8	13.3	.0	268.8
Pin cherry/reverting field	.0	.0	5.3	.0	5.3
Mixed northern hardwoods	129.5	72.3	7.1	.0	208.9
Northern hardwoods group	449.3	304.8	39.4	.0	793.5
Aspen	.0	22.1	7.5	.0	29.6
Paper birch	.0	15.0	.0	.0	15.0
Gray birch	.0	.0	7.4	.0	7.4
Aspen/birch group	.0	37.1	14.9	.0	52.0
All forest types	1,493.6	673.7	154.6	.0	2,321.9

Table 22.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Southern Unit, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Eastern redcedar	558	0	0	0	0	0	0	0	0	0	558	88
Hickory	1,392	974	655	136	16	83	24	0	0	0	3,280	44
Beech	6,895	4,578	2,055	1,571	1,136	708	338	54	158	8	17,501	13
Apple	251	68	0	0	0	0	0	0	0	0	319	74
Eastern hophornbeam	1,382	1,029	66	54	0	0	0	0	0	0	2,531	28
Pin cherry	124	141	0	0	0	17	0	0	0	0	282	60
Black cherry	2,703	1,188	1,193	409	151	66	0	0	0	0	5,710	20
Chokecherry	33	0	0	0	0	0	0	0	0	0	33	100
White oak	4,182	2,402	917	918	339	286	129	19	10	23	9,225	18
Scarlet oak	769	624	579	266	93	31	46	20	26	0	2,454	48
Chestnut oak	629	710	373	197	53	0	0	0	0	0	1,962	57
Northern red oak	12,633	10,982	6,539	4,787	2,518	1,272	818	170	378	28	40,125	9
Black oak	2,923	2,410	1,703	1,225	697	221	127	55	74	0	9,435	19
Mountain ash	0	0	0	17	0	0	0	0	0	0	17	100
Total, all species	34,474	25,106	14,080	9,580	5,003	2,684	1,482	318	646	59	93,432	5.8
Sampling error (percent)	8	8	10	9	10	12	14	28	20	54	5.8	

Table 23.--Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type, Southern Unit, New Hampshire, 1983

(In thousands of stems)

Stand-size class and type of stem	Mast type			Unidentified species	Total stems
	Nuts	Other seeds	Berries		
Sawtimber:					
Shrubs	111,366	659,293	2,207,192	160,912	3,138,763
Saplings	120,026	435,491	13,251	0	568,768
Total sawtimber	231,392	1,094,784	2,220,443	160,912	3,707,531
Poletimber:					
Shrubs	112,768	651,051	1,336,628	43,919	2,144,366
Saplings	47,059	310,300	0	2,865	360,224
Total poletimber	159,827	961,351	1,336,628	46,784	2,504,590
Sapling/seedling:					
Shrubs	0	312,480	539,861	24,892	877,233
Saplings	7,280	93,175	4,418	0	104,873
Total sapling/seedling	7,280	405,655	544,279	24,892	982,106
Nonstocked:					
Shrubs	0	0	0	0	0
Saplings	0	0	0	0	0
Total nonstocked	0	0	0	0	0
Total, all classes	398,499	2,461,790	4,101,350	232,588	7,194,227

Table 24.--Number of standing dead trees on timberland by species, condition, and diameter class, Southern Unit, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	52	97	0	149	1,160	0	17	1,177	1,326	35
Tamarack	0	55	0	55	0	0	0	0	55	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	1,520	17	18	1,555	1,425	54	17	1,496	3,051	25
Red pine	16	0	0	16	34	0	0	34	50	75
White pine	5,323	283	109	5,715	5,204	578	396	6,178	11,893	15
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	666	33	122	821	446	137	76	659	1,480	25
Other softwoods	655	45	0	700	72	33	26	131	831	61
Total softwoods	8,232	530	249	9,011	8,341	802	532	9,675	18,686	11
Sugar maple	409	0	7	416	509	32	81	622	1,038	31
Red maple	961	48	9	1,018	2,408	316	182	2,906	3,924	19
Yellow birch	156	0	16	172	1,320	49	33	1,402	1,574	32
Paper birch	553	0	0	553	1,481	173	35	1,689	2,242	25
Gray birch	345	0	0	345	595	0	0	595	940	37
Beech	558	107	20	685	432	142	66	640	1,325	43
White ash	98	0	0	98	477	87	23	587	685	41
Black ash	0	0	0	0	65	0	0	65	65	100
Aspen	270	17	0	287	741	0	0	741	1,028	34
White oaks	135	0	26	161	392	16	0	408	569	55
Red oaks	512	44	16	572	544	34	17	595	1,167	27
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	535	0	48	583	350	33	29	412	995	36
Other hardwoods[a]	1,124	17	0	1,141	993	33	65	1,091	2,232	34
Total hardwoods	5,656	233	142	6,031	10,307	915	531	11,753	17,784	10
Total, all species	13,888	763	391	15,042	18,648	1,717	1,063	21,428	36,470	7.1
Sampling error (percent)	13	26	26	12	9	16	15	8	7.1	

[a]Includes noncommercial hardwoods.

Table 25.--Number of trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition, Southern Unit, New Hampshire, 1983

Species	Live				Total live	Dead		Total dead	Total all trees	Sampling error
	No cull	Intact live top	Broken top	Dead top		Intact top	Broken top			
	Thousand trees									Percent
Balsam fir	17	48	0	0	65	48	220	268	333	54
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	276	130	0	0	406	238	441	679	1,085	47
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	554	1,679	0	0	2,233	207	1,132	1,339	3,572	19
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	575	337	34	0	946	17	212	229	1,175	22
Other softwoods	0	14	0	0	14	0	26	26	40	75
Total softwoods	1,422	2,208	34	0	3,664	510	2,031	2,541	6,205	15
Sugar maple	923	894	34	373	2,224	34	296	330	2,554	22
Red maple	4,097	5,751	17	0	9,865	145	1,484	1,629	11,494	12
Yellow birch	902	831	44	0	1,777	50	680	730	2,507	26
Paper birch	1,179	575	0	0	1,754	34	1,143	1,177	2,931	22
Gray birch	65	36	0	0	101	0	135	135	236	38
Beech	1,486	1,814	52	0	3,352	55	199	254	3,606	19
White ash	50	117	0	0	167	0	224	224	391	36
Black ash	86	0	0	0	86	0	0	0	86	72
Aspen	17	412	0	0	429	0	36	36	465	66
White oaks	187	34	0	0	221	34	0	34	255	37
Red oaks	868	688	0	44	1,600	101	331	432	2,032	21
Basswood	67	320	0	0	387	0	0	0	387	57
Elm	17	34	0	0	51	48	45	93	144	41
Other hardwoods[a]	338	766	0	34	1,138	68	337	405	1,543	30
Total hardwoods	10,282	12,272	147	451	23,152	569	4,910	5,479	28,631	8
Total, all species	11,704	14,480	181	451	26,816	1,079	6,941	8,020	34,836	6.8
Sampling error (percent)	11	9	46	70	8	29	13	12	6.8	

[a] Includes noncommercial hardwoods.

Table 26.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and stand-size class, Southern Unit, New Hampshire, 1983

(In millions of stems)

Species and browse preference class	Stand-size class				All classes	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Canada yew	25.3	.0	.0	.0	25.3	s[a]
Eastern hemlock	328.5	93.1	25.2	.0	446.8	20
Striped maple	329.4	119.2	.0	.0	448.6	4
Red maple	840.4	579.0	205.1	.0	1,624.5	16
Mountain maple	81.7	10.8	.0	.0	92.5	0
Apple	4.5	.0	9.9	.0	14.4	21
Smooth sumac	2.9	12.5	.0	.0	15.4	s
Staghorn sumac	7.2	.0	3.0	.0	10.2	s
Mountain ash	1.5	.0	.0	.0	1.5	s
Hobblebush viburnum	84.9	60.0	.0	.0	144.9	s
Total readily browsed	1,706.3	874.6	243.2	.0	2,824.1	
Balsam fir	129.2	44.0	.0	.0	173.2	14
Common juniper	90.6	207.4	6.0	.0	304.0	s
White pine	448.8	72.7	35.0	.0	556.5	21
Sugar maple	223.1	255.6	54.1	.0	532.8	10
Shadbush	199.1	74.3	1.4	.0	274.8	s
Yellow birch	175.0	66.2	1.5	.0	242.7	16
Black birch	92.5	29.3	.0	.0	121.8	25
Paper birch	129.3	131.9	14.4	.0	275.6	14
Red-Osier dogwood	10.2	50.6	13.8	.0	74.6	s
Hawthorn	10.1	8.7	.0	.0	18.8	0
American hazelnut	45.8	46.9	.0	.0	92.7	s
Beaked hazelnut	65.7	65.9	.0	.0	131.6	s
Beech	266.3	63.0	1.5	.0	330.8	19
White ash	241.6	75.7	.0	.0	317.3	7
Black ash	4.2	10.2	.0	.0	14.4	42
Winterberry	30.3	56.0	.0	.0	86.3	s
Honeysuckle	35.4	.0	34.7	.0	70.1	s
Mountain holly	.0	22.6	.0	.0	22.6	s
Bigtooth aspen	4.5	7.4	7.8	.0	19.7	0
Quaking aspen	59.3	32.3	32.7	.0	124.3	14
Pin cherry	32.4	19.1	50.0	.0	101.5	2
Black cherry	184.0	49.5	55.4	.0	288.9	3
Chokecherry	28.4	34.4	36.8	.0	99.6	s
White oak	121.5	50.4	1.5	.0	173.4	11
Roses	4.5	.0	4.2	.0	8.7	s
Brambles	463.5	217.1	176.8	.0	857.4	s
Willows	4.5	.0	3.1	.0	7.6	20
Common elderberry	3.0	14.4	.0	.0	17.4	s
Red-berried elder	4.3	.0	.0	.0	4.3	s
American elm	8.5	22.2	1.5	.0	32.2	7
Blueberries	963.3	475.7	209.6	.0	1,648.6	s
Sweetfern	39.5	17.6	.0	.0	57.1	s
Maple-leaf viburnum	171.8	55.0	21.4	.0	248.2	s
Wild raisin	111.0	32.6	.0	.0	143.6	s
Total commonly browsed	4,401.2	2,308.7	763.2	.0	7,473.1	

Table 26.--Continued

(In millions of stems)

Species and browse preference class	Stand-size class				All classes	Percent saplings
	Sawtimber	Poletimber	Sapling and seedling	Non-stocked		
Black spruce	1.5	.0	.0	.0	1.5	100
Red spruce	47.1	60.7	.0	.0	107.8	19
Pitch pine	.0	1.5	.0	.0	1.5	100
Speckled alder	43.0	47.9	16.6	.0	107.5	s
Black chokecherry	1.4	1.4	46.6	.0	49.4	s
Gray birch	77.7	53.2	156.8	.0	287.7	26
Lambkill	50.1	26.4	2.3	.0	78.8	s
Eastern hophornbeam	26.7	9.7	7.2	.0	43.6	44
Red oak	287.5	124.9	40.4	.0	452.8	10
Spiraea	155.7	241.5	222.5	.0	619.7	s
Total infrequently browsed	690.7	567.2	492.4	.0	1,750.3	
Witch-hazel	194.1	163.7	30.6	.0	388.4	s
Gooseberries	6.5	2.9	.0	.0	9.4	s
Total questionable	200.6	166.6	30.6	.0	397.8	
Other species	702.9	461.9	124.0	.0	1,288.8	
Total all species	7,701.7	4,379.0	1,653.4	.0	13,734.1	
Sampling error (percent)	8	12	25	-	5.5	

[a]Classed as shrub species.

Table 27.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and forest-type group, Southern Unit, New Hampshire, 1983

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Canada yew	11.1	.0	.0	.0	5.6	.0	8.6	.0	25.3
Eastern hemlock	330.4	.0	.0	18.6	14.6	.0	83.2	.0	446.8
Striped maple	102.2	.0	.0	.0	17.4	.0	327.6	1.4	448.6
Red maple	744.1	45.4	23.8	49.5	263.8	2.4	428.3	67.2	1,624.5
Mountain maple	.0	.0	.0	.0	3.0	.0	89.5	.0	92.5
Apple	10.0	.0	.0	.0	.0	.0	4.4	.0	14.4
Smooth sumac	1.4	.0	.0	.0	1.4	.0	12.6	.0	15.4
Staghorn sumac	7.2	.0	.0	.0	.0	.0	3.0	.0	10.2
Mountain ash	.0	.0	.0	.0	.0	.0	1.5	.0	1.5
Hobblebush viburnum	1.5	.0	.0	4.5	4.4	.0	134.5	.0	144.9
Total readily browsed	1,207.9	45.4	23.8	72.6	310.2	2.4	1,093.2	68.6	2,824.1
Balsam fir	60.5	10.4	.0	.0	4.5	.0	96.3	1.5	173.2
Common juniper	56.5	.0	1.5	20.1	204.4	.0	21.5	.0	304.0
White pine	356.3	.0	3.0	27.6	59.4	.0	107.2	3.0	556.5
Sugar maple	164.9	.0	.0	1.5	33.2	.0	316.4	16.8	532.8
Shadbush	64.6	1.5	.0	1.5	139.0	.0	63.8	4.4	274.8
Yellow birch	97.8	10.4	.0	2.9	21.9	.0	109.7	.0	242.7
Black birch	85.2	.0	1.5	.0	20.5	.0	14.6	.0	121.8
Paper birch	130.2	1.9	.0	.0	55.5	.0	80.5	7.5	275.6
Red-Osier dogwood	8.7	.0	.0	.0	.0	42.2	9.9	13.8	74.6
Hawthorn	1.5	.0	.0	.0	10.1	.0	7.2	.0	18.8
American hazelnut	24.5	.0	.0	10.5	43.1	.0	14.6	.0	92.7
Beaked hazelnut	23.1	.0	.0	55.5	45.8	.0	7.2	.0	131.6
Beech	55.3	1.5	.0	1.4	39.3	.0	231.9	1.4	330.8
White ash	164.5	.0	.0	.0	36.6	.0	108.5	7.7	317.3
Black ash	2.8	.0	.0	.0	4.2	.0	7.4	.0	14.4
Winterberry	19.5	.0	.0	.0	.0	.0	66.8	.0	86.3
Honeysuckle	26.7	.0	.0	.0	7.2	.0	36.2	.0	70.1
Mountain holly	16.8	.0	.0	.0	5.8	.0	.0	.0	22.6
Bigtooth aspen	1.5	.0	3.0	.0	8.9	.0	6.3	.0	19.7
Quaking aspen	77.8	.0	.0	4.5	5.9	.0	4.3	31.8	124.3
Pin cherry	27.6	.0	.0	.0	25.2	1.3	44.4	3.0	101.5
Black cherry	128.4	.0	29.8	11.7	26.3	.0	83.8	8.9	288.9
Chokecherry	39.2	.0	.0	.0	34.4	.0	26.0	.0	99.6
White oak	76.8	.0	13.4	1.5	63.7	.0	18.0	.0	173.4
Roses	8.7	.0	.0	.0	.0	.0	.0	.0	8.7

Table 27.--Continued

(In millions of stems)

Species and browse preference class	Forest-type group								All groups
	White/ red pine	Spruce/ fir	Hard pine	Oak/ pine	Oak/ hickory	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch	
Brambles	437.8	.0	31.3	1.4	138.6	9.5	203.1	35.7	857.4
Willows	4.5	.0	.0	.0	.0	.0	.0	3.1	7.6
Common elderberry	3.0	.0	.0	.0	14.4	.0	.0	.0	17.4
Red-berried elder	.0	.0	.0	.0	.0	.0	4.3	.0	4.3
American elm	15.8	.0	.0	.0	.0	.0	.0	16.4	32.2
Blueberries	797.2	20.6	8.9	94.7	598.5	.0	122.7	6.0	1,648.6
Sweetfern	24.6	.0	.0	.0	4.5	.0	28.0	.0	57.1
Maple-leaf viburnum	84.8	.0	43.2	4.5	108.3	.0	2.9	4.5	248.2
Wild raisin	50.3	1.4	.0	.0	69.5	.0	10.5	11.9	143.6
Total commonly browsed	3,137.4	47.7	135.6	239.3	1,828.7	53.0	1,854.0	177.4	7,473.1
Black spruce	.0	.0	.0	.0	.0	.0	1.5	.0	1.5
Red spruce	16.1	40.3	.0	.0	1.4	.0	50.0	.0	107.8
Pitch pine	.0	.0	.0	.0	1.5	.0	.0	.0	1.5
Speckled alder	47.0	8.9	.0	.0	.0	16.6	33.5	1.5	107.5
Black chokecherry	48.0	.0	.0	.0	1.4	.0	.0	.0	49.4
Gray birch	93.8	4.5	26.8	10.4	41.4	9.5	32.8	68.5	287.7
Lambkill	50.1	.0	.0	17.7	2.9	2.4	5.7	.0	78.8
Eastern hophornbeam	16.7	.0	.0	.0	13.4	.0	13.5	.0	43.6
Red oak	282.7	.0	4.5	19.3	57.0	.0	63.8	25.5	452.8
Spiraea	276.6	.0	14.9	3.0	38.1	141.7	109.7	35.7	619.7
Total infrequently browsed	831.0	53.7	46.2	50.4	157.1	170.2	310.5	131.2	1,750.3
Witch-hazel	133.2	.0	.0	27.1	76.3	.0	148.8	3.0	388.4
Gooseberries	2.1	.0	.0	.0	4.3	.0	3.0	.0	9.4
Total questionable	135.3	.0	.0	27.1	80.6	.0	151.8	3.0	397.8
Other species	693.5	.0	16.4	82.3	181.9	29.1	270.7	14.9	1,288.8
Total all species	6,005.1	146.8	222.0	471.7	2,558.5	254.7	3,680.2	395.1	13,734.1
Sampling error (percent)	11	48	71	42	19	80	11	42	5.5

Table 28.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Southern Unit, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Canada yew	25.3	.0	.0	.0	25.3	60
Eastern hemlock	446.8	.0	.0	.0	446.8	14
Striped maple	376.0	30.9	41.7	.0	448.6	21
Red maple	1,382.3	137.4	86.2	18.6	1,624.5	9
Mountain maple	89.4	3.1	.0	.0	92.5	54
Apple	14.4	.0	.0	.0	14.4	76
Smooth sumac	15.4	.0	.0	.0	15.4	82
Staghorn sumac	10.2	.0	.0	.0	10.2	77
Mountain ash	1.5	.0	.0	.0	1.5	100
Hobblebush viburnum	80.3	64.6	.0	.0	144.9	43
Total readily browsed	2,441.6	236.0	127.9	18.6	2,824.1	7
Balsam fir	153.2	1.4	18.6	.0	173.2	26
Common juniper	301.0	3.0	.0	.0	304.0	50
White pine	546.2	10.3	.0	.0	556.5	18
Sugar maple	428.1	82.0	22.7	.0	532.8	21
Shadbush	228.0	38.4	.0	8.4	274.8	34
Yellow birch	183.7	53.2	5.8	.0	242.7	30
Black birch	118.8	3.0	.0	.0	121.8	35
Paper birch	217.4	42.9	12.3	3.0	275.6	19
Red-Osier dogwood	74.6	.0	.0	.0	74.6	62
Hawthorn	18.8	.0	.0	.0	18.8	47
American hazelnut	69.4	19.5	3.8	.0	92.7	33
Beaked hazelnut	70.5	61.1	.0	.0	131.6	51
Beech	283.2	34.5	13.1	.0	330.8	13
White ash	280.0	32.9	4.4	.0	317.3	17
Black ash	14.4	.0	.0	.0	14.4	55
Winterberry	73.9	7.8	.0	4.6	86.3	68
Honeysuckle	70.1	.0	.0	.0	70.1	60
Mountain holly	4.4	1.4	.0	16.8	22.6	79
Bigtooth aspen	19.7	.0	.0	.0	19.7	40
Quaking aspen	91.1	23.6	.0	9.6	124.3	31
Pin cherry	83.8	14.7	3.0	.0	101.5	38
Black cherry	283.2	5.7	.0	.0	288.9	18
Chokecherry	99.6	.0	.0	.0	99.6	38
White oak	157.2	3.0	10.1	3.1	173.4	24
Roses	7.2	1.5	.0	.0	8.7	62
Brambles	857.4	.0	.0	.0	857.4	20
Willows	7.6	.0	.0	.0	7.6	53
Common elderberry	17.4	.0	.0	.0	17.4	84
Red-berried elder	4.3	.0	.0	.0	4.3	74
American elm	32.2	.0	.0	.0	32.2	51
Blueberries	1,536.4	34.7	59.3	18.2	1,648.6	23
Sweetfern	49.8	1.4	5.9	.0	57.1	45
Maple-leaf viburnum	238.1	10.1	.0	.0	248.2	36
Wild raisin	131.7	11.9	.0	.0	143.6	39
Total commonly browsed	6,752.4	498.0	159.0	63.7	7,473.1	8

Table 28.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Black spruce	1.5	.0	.0	.0	1.5	100
Red spruce	107.8	.0	.0	.0	107.8	28
Pitch pine	1.5	.0	.0	.0	1.5	100
Speckled alder	93.5	14.0	.0	.0	107.5	32
Black chokecherry	49.4	.0	.0	.0	49.4	94
Gray birch	199.9	29.7	41.7	16.4	287.7	30
Lambkill	78.8	.0	.0	.0	78.8	45
Eastern hophornbeam	43.6	.0	.0	.0	43.6	32
Red oak	396.8	26.2	26.8	3.0	452.8	14
Spiraea	544.1	27.0	.0	48.6	619.7	28
Total infrequently browsed	1,516.9	96.9	68.5	68.0	1,750.3	14
Witch hazel	363.0	9.3	16.1	.0	388.4	21
Gooseberries	9.4	.0	.0	.0	9.4	46
Total questionable	372.4	9.3	16.1	.0	397.8	20
Other species	1,194.3	61.9	5.9	26.7	1,288.8	16
Total all species	12,277.6	902.1	377.4	177.0	13,734.1	5.5
Sampling error (percent)	6	16	24	31	5.5	

COUNTY TABLES

Table 29.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Belknap County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	905	565	70	191	58	58	16	20	0	0	1,883	39
Eastern hophornbeam	298	0	0	0	0	0	0	0	0	0	298	86
Black cherry	33	0	0	0	0	0	0	0	0	0	33	100
White oak	65	33	123	52	50	65	24	0	0	0	412	49
Northern red oak	2,220	1,499	1,183	997	482	120	87	16	94	0	6,698	20
Total, all species	3,521	2,097	1,376	1,240	590	243	127	36	94	0	9,324	18.0
Sampling error (percent)	23	23	36	21	28	35	49	71	52	-	18.0	

Table 30.--Number of standing dead trees on timberland by species, condition, and diameter class, Belknap County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	35	0	0	35	0	0	0	0	35	100
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	0	0	0	0	33	0	0	33	33	100
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	691	16	0	707	486	16	0	502	1,209	49
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	201	0	0	201	134	35	0	169	370	51
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	927	16	0	943	653	51	0	704	1,647	36
Sugar maple	136	0	0	136	0	0	25	25	161	86
Red maple	35	0	0	35	162	0	17	179	214	50
Yellow birch	89	0	0	89	136	0	0	136	225	72
Paper birch	0	0	0	0	70	0	0	70	70	62
Gray birch	0	0	0	0	71	0	0	71	71	100
Beech	0	0	0	0	0	16	0	16	16	100
White ash	0	0	0	0	0	0	0	0	0	0
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	33	0	0	33	0	0	0	0	33	100
White oaks	35	0	0	35	0	0	0	0	35	100
Red oaks	0	0	16	16	0	34	0	34	50	72
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	165	0	0	165	165	100
Other hardwoods[a]	0	0	0	0	0	0	0	0	0	0
Total hardwoods	328	0	16	344	604	50	42	696	1,040	32
Total, all species	1,255	16	16	1,287	1,257	101	42	1,400	2,687	23.7
Sampling error (percent)	36	100	100	35	35	61	72	32	23.7	

[a]Includes noncommercial hardwoods.

Table 31.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Belknap County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Eastern hemlock	49.3	.0	.0	.0	49.3	50
Striped maple	59.4	10.8	.0	.0	70.2	54
Red maple	89.7	4.4	15.9	.0	110.0	26
Mountain maple	7.7	3.1	.0	.0	10.8	100
Smooth sumac	1.5	.0	.0	.0	1.5	100
Total readily browsed	207.6	18.3	15.9	.0	241.8	23
Balsam fir	21.5	.0	.0	.0	21.5	94
Common juniper	39.8	.0	.0	.0	39.8	96
White pine	109.1	4.3	.0	.0	113.4	58
Sugar maple	35.3	7.1	2.9	.0	45.3	42
Shadbush	10.1	.0	.0	.0	10.1	59
Yellow birch	33.7	4.3	.0	.0	38.0	34
Black birch	1.5	.0	.0	.0	1.5	100
Paper birch	34.3	12.0	10.8	.0	57.1	41
Red-Osier dogwood	13.8	.0	.0	.0	13.8	100
Hawthorn	1.5	.0	.0	.0	1.5	100
Beech	39.0	.0	5.8	.0	44.8	41
White ash	13.5	1.5	1.4	.0	16.4	55
Quaking aspen	29.8	.0	.0	.0	29.8	69
Pin cherry	1.4	.0	.0	.0	1.4	100
Black cherry	2.9	1.4	.0	.0	4.3	74
White oak	5.9	.0	.0	3.1	9.0	72
Brambles	80.9	.0	.0	.0	80.9	59
Willows	6.1	.0	.0	.0	6.1	62
American elm	1.5	.0	.0	.0	1.5	100
Blueberries	58.0	2.9	17.1	.0	78.0	45
Wild rasisn	5.8	.0	.0	.0	5.8	100
Total commonly browsed	545.4	33.5	38.0	3.1	620.0	15
Red spruce	1.5	.0	.0	.0	1.5	100
Speckled alder	7.1	.0	.0	.0	7.1	100
Gray birch	4.5	.0	.0	.0	4.5	75
Lambkill	1.5	.0	.0	.0	1.5	100
Eastern hophornbeam	10.6	.0	.0	.0	10.6	56
Red oak	62.3	.0	2.9	.0	65.2	47
Spiraea	45.0	.0	.0	.0	45.0	58
Total infrequently browsed	132.5	.0	2.9	.0	135.4	31
Witch-hazel	13.1	.0	.0	.0	13.1	80
Total questionable	13.1	.0	.0	.0	13.1	80
Other species	14.4	.0	.0	.0	14.4	61
Total all species	913.0	51.8	56.8	3.1	1,024.7	12.8
Sampling error (percent)	13	37	44	100	12.8	

Table 32.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Carroll County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	4,209	2,405	2,019	1,189	998	730	385	136	154	22	12,247	20
Apple	87	0	0	0	0	0	0	0	0	0	87	100
Eastern hophornbeam	45	0	0	0	0	0	0	0	0	0	45	100
Black cherry	260	45	0	0	0	0	0	0	0	0	305	74
White oak	252	0	0	0	21	0	0	0	0	0	273	93
Northern red oak	2,439	2,085	954	626	256	415	120	51	11	0	6,957	31
Total, all species	7,292	4,535	2,973	1,815	1,275	1,145	505	187	165	22	19,914	14.7
Sampling error (percent)	25	21	23	24	26	22	34	49	37	100	14.7	

Table 33.--Number of standing dead trees on timberland by species, condition, and diameter class, Carroll County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	131	57	0	188	556	71	43	670	858	40
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	655	0	0	655	503	0	22	525	1,180	54
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	738	0	0	738	108	0	37	145	883	74
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	22	21	0	43	45	0	0	45	88	61
Other softwoods	0	0	0	0	258	22	0	280	280	87
Total softwoods	1,546	78	0	1,624	1,470	93	102	1,665	3,289	30
Sugar maple	0	22	0	22	0	67	0	67	89	78
Red maple	133	0	0	133	308	104	62	474	607	42
Yellow birch	130	65	0	195	687	89	66	842	1,037	44
Paper birch	86	0	0	86	180	99	0	279	365	38
Gray birch	0	0	0	0	77	0	0	77	77	100
Beech	130	0	23	153	186	169	170	525	678	35
White ash	45	0	0	45	0	0	0	0	45	100
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	233	85	0	318	173	0	0	173	491	54
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	90	0	0	90	90	69
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	0	0	0	0	0	0	0	0
Other hardwoods[a]	0	0	0	0	0	0	0	0	0	0
Total hardwoods	757	172	23	952	1,701	528	298	2,527	3,479	18
Total, all species	2,303	250	23	2,576	3,171	621	400	4,192	6,768	16.3
Sampling error (percent)	31	49	100	29	22	33	25	18	16.3	

[a]Includes noncommercial hardwoods.

Table 34.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Carroll County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Eastern hemlock	137.3	.0	3.9	.0	141.2	28
Striped maple	137.2	41.2	18.6	7.6	204.6	33
Red maple	215.9	.0	.0	.0	215.9	27
Mountain maple	30.3	.0	.0	9.5	39.8	62
Staghorn sumac	3.6	.0	.0	.0	3.6	71
Mountain ash	9.5	.0	.0	.0	9.5	100
Hobblebush viburnum	138.9	32.4	46.3	18.9	236.5	32
Total readily browsed	672.7	73.6	68.8	36.0	851.1	16
Balsam fir	165.7	.0	.0	.0	165.7	27
White pine	64.2	.0	.0	.0	64.2	29
Sugar maple	179.8	28.6	1.8	13.3	223.5	32
Shadbush	29.2	.0	.0	.0	29.2	83
Yellow birch	72.8	.0	.0	.0	72.8	42
Paper birch	29.4	1.9	.0	.0	31.3	40
American hazelnut	118.8	.0	.0	.0	118.8	71
Beaked hazelnut	35.4	.0	.0	.0	35.4	100
Beech	381.5	2.0	.0	1.8	385.3	24
White ash	39.7	26.5	.0	.0	66.2	47
Winterberry	9.5	.0	.0	.0	9.5	100
Mountain holly	3.8	.0	.0	.0	3.8	100
Quaking aspen	3.7	.0	.0	.0	3.7	71
Pin cherry	62.8	.0	.0	.0	62.8	55
Black cherry	48.3	3.8	.0	.0	52.1	54
White oak	.0	3.7	.0	.0	3.7	100
Brambles	22.6	.0	.0	.0	22.6	46
Common elderberry	3.7	3.7	.0	.0	7.4	66
American elm	2.0	.0	.0	.0	2.0	100
Blueberries	102.0	.0	.0	.0	102.0	40
Sweetfern	49.4	.0	.0	.0	49.4	65
Maple-leaf viburnum	3.9	1.9	.0	.0	5.8	75
Wild raisin	7.6	.0	.0	.0	7.6	69
Total commonly browsed	1,435.8	72.1	1.8	15.1	1,524.8	14

Table 34.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Red spruce	47.8	.0	.0	.0	47.8	35
Pitch pine	5.7	.0	.0	.0	5.7	100
Speckled alder	1.9	.0	.0	.0	1.9	100
Gray birch	24.8	.0	.0	.0	24.8	63
Lambkill	152.4	.0	.0	.0	152.4	45
Eastern hophornbeam	17.2	.0	.0	.0	17.2	45
Red oak	367.8	.0	.0	.0	367.8	52
Spiraea	45.2	.0	.0	.0	45.2	96
Total infrequently browsed	662.8	.0	.0	.0	662.8	34
Witch-hazel	7.6	.0	.0	.0	7.6	79
Total questionable	7.6	.0	.0	.0	7.6	79
Other species	119.5	11.8	.0	3.8	135.1	34
Total all species	2,898.4	157.5	70.6	54.9	3,181.4	10.4
Sampling error (percent)	11	33	55	96	10.4	

Table 35.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Cheshire County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Hickory	704	397	66	16	16	17	0	0	0	0	1,216	94
Beech	1,386	1,297	620	402	434	226	147	0	40	0	4,552	27
Eastern hophornbeam	204	131	0	0	0	0	0	0	0	0	335	81
Pin cherry	31	0	0	0	0	0	0	0	0	0	31	100
Black cherry	893	777	670	154	59	0	0	0	0	0	2,553	34
White oak	67	241	131	55	16	0	24	0	0	0	534	49
Northern red oak	2,750	2,177	876	1,060	529	491	294	68	29	17	8,291	19
Black oak	300	268	236	118	214	45	40	55	12	0	1,288	75
Total, all species	6,335	5,288	2,599	1,805	1,268	779	505	123	81	17	18,800	12.7
Sampling error (percent)	17	16	25	21	23	27	26	52	39	100	12.7	

Table 36.--Number of standing dead trees on timberland by species, condition, and diameter class, Cheshire County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	0	0	0	0	34	0	0	34	34	100
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	489	0	0	489	613	0	17	630	1,119	37
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	431	69	0	500	925	182	105	1,212	1,712	28
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	17	0	0	17	81	0	16	97	114	61
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	937	69	0	1,006	1,653	182	138	1,973	2,979	21
Sugar maple	0	0	0	0	168	16	17	201	201	78
Red maple	67	0	0	67	547	114	0	661	728	27
Yellow birch	34	0	0	34	219	0	0	219	253	78
Paper birch	33	0	0	33	308	16	0	324	357	45
Gray birch	0	0	0	0	128	0	0	128	128	79
Beech	0	0	0	0	115	52	33	200	200	54
White ash	0	0	0	0	81	44	0	125	125	74
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	33	0	0	33	33	100
White oaks	0	0	0	0	0	16	0	16	16	100
Red oaks	0	0	0	0	68	0	0	68	68	70
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	246	0	17	263	0	0	0	0	263	94
Other hardwoods[a]	271	0	0	271	376	0	17	393	664	63
Total hardwoods	651	0	17	668	2,043	258	67	2,368	3,036	22
Total, all species	1,588	69	17	1,674	3,696	440	205	4,341	6,015	14.5
Sampling error (percent)	29	80	100	27	19	26	31	16	14.5	

[a]Includes noncommercial hardwoods.

Table 37.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Cheshire County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Canada yew	11.1	.0	.0	.0	11.1	100
Eastern hemlock	59.8	.0	.0	.0	59.8	23
Striped maple	53.0	.0	37.3	.0	90.3	49
Red maple	138.3	13.2	13.2	.0	164.7	18
Mountain maple	47.6	.0	.0	.0	47.6	94
Apple	4.5	.0	.0	.0	4.5	100
Smooth sumac	1.4	.0	.0	.0	1.4	100
Hobblebush viburnum	4.5	.0	.0	.0	4.5	100
Total readily browsed	320.2	13.2	50.5	.0	383.9	18
Balsam fir	13.4	.0	.0	.0	13.4	49
Common juniper	4.5	3.0	.0	.0	7.5	58
White pine	49.5	.0	.0	.0	49.5	29
Sugar maple	126.9	14.5	1.5	.0	142.9	37
Shadbush	.0	22.4	.0	.0	22.4	100
Yellow birch	58.6	40.3	.0	.0	98.9	68
Black birch	14.7	.0	.0	.0	14.7	52
Paper birch	32.7	1.5	.0	3.0	37.2	38
Red-Osier dogwood	42.2	.0	.0	.0	42.2	100
Hawthorn	11.5	.0	.0	.0	11.5	68
American hazelnut	10.4	.0	.0	.0	10.4	100
Beaked hazelnut	1.5	.0	.0	.0	1.5	100
Beech	79.5	8.7	.0	.0	88.2	23
White ash	60.2	11.5	1.5	.0	73.2	39
Honeysuckle	32.6	.0	.0	.0	32.6	100
Bigtooth aspen	1.5	.0	.0	.0	1.5	100
Pin cherry	4.1	.0	.0	.0	4.1	75
Black cherry	54.3	.0	.0	.0	54.3	47
Chokecherry	4.2	.0	.0	.0	4.2	100
White oak	1.4	.0	.0	.0	1.4	100
Brambles	101.5	.0	.0	.0	101.5	35
Common elderberry	14.4	.0	.0	.0	14.4	100
Red-berried elder	1.5	.0	.0	.0	1.5	100
Blueberries	200.6	7.3	.0	.0	207.9	82
Sweetfern	27.7	.0	.0	.0	27.7	58
Wild raisin	10.1	.0	.0	.0	10.1	65
Total commonly browsed	959.5	109.2	3.0	3.0	1,074.7	21

Table 37.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Red spruce	41.5	.0	.0	.0	41.5	60
Speckled alder	21.6	.0	.0	.0	21.6	100
Black chokeberry	2.8	.0	.0	.0	2.8	71
Gray birch	9.5	.0	.0	.0	9.5	100
Lambkill	27.4	.0	.0	.0	27.4	100
Eastern hophornbeam	7.4	.0	.0	.0	7.4	83
Red oak	39.1	4.4	22.4	3.0	68.9	33
Spiraea	191.7	.0	.0	5.9	197.6	69
Total infrequently browsed	341.0	4.4	22.4	8.9	376.7	42
Witch-hazel	65.6	.0	.0	.0	65.6	66
Gooseberries	1.5	.0	.0	.0	1.5	100
Total questionable	67.1	.0	.0	.0	67.1	65
Other species	187.6	.0	.0	.0	187.6	52
Total all species	1,875.4	126.8	75.9	11.9	2,090.0	19.3
Sampling error (percent)	21	41	60	78	19.3	

Table 38.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Coos County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	2,036	1,858	1,305	485	299	37	31	21	0	0	6,072	30
Butternut	0	0	0	0	0	0	0	0	21	0	21	100
Apple	615	0	154	0	0	0	0	0	0	0	769	94
Eastern hophornbeam	0	131	0	0	51	0	0	0	0	0	182	77
Pin cherry	648	47	0	0	0	0	0	0	0	0	695	63
Black cherry	810	373	459	182	134	23	0	0	0	0	1,981	42
Mountain ash	693	91	159	24	0	0	0	0	0	0	967	45
Total, all species	4,802	2,500	2,077	691	484	60	31	21	21	0	10,687	19.7
Sampling error (percent)	23	33	24	42	38	73	100	100	100	-	19.7	

Table 39.--Number of standing dead trees on timberland by species, condition, and diameter class, Coos County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	4,660	226	22	4,908	8,536	825	92	9,453	14,361	20
Tamarack	184	24	0	208	41	23	0	64	272	76
White spruce	100	0	0	100	0	0	0	0	100	100
Black spruce	0	0	0	0	182	0	0	182	182	100
Red spruce	2,643	156	0	2,799	1,081	289	128	1,498	4,297	24
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	185	21	20	226	45	85	39	169	395	57
Northern white-cedar	238	23	0	261	372	0	0	372	633	79
Hemlock	0	0	0	0	91	107	28	226	226	100
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	8,010	450	42	8,502	10,348	1,329	287	11,964	20,466	16
Sugar maple	130	83	0	213	41	44	61	146	359	46
Red maple	236	0	0	236	666	23	0	689	925	45
Yellow birch	178	48	23	249	1,968	640	623	3,231	3,480	19
Paper birch	47	23	0	70	905	118	19	1,042	1,112	39
Gray birch	0	0	0	0	244	0	0	244	244	100
Beech	0	0	0	0	42	46	17	105	105	72
White ash	0	0	0	0	0	0	0	0	0	0
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	685	85	0	770	1,316	81	21	1,418	2,188	36
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	122	0	21	143	41	0	0	41	184	100
Other hardwoods[a]	1,729	0	0	1,729	844	23	20	887	2,616	47
Total hardwoods	3,127	239	44	3,410	6,067	975	761	7,803	11,213	15
Total, all species	11,137	689	86	11,912	16,415	2,304	1,048	19,767	31,679	11.0
Sampling error (percent)	18	25	50	17	12	19	21	11	11.0	

[a]Includes noncommercial hardwoods.

Table 40.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Coos County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Northern white-cedar	5.6	.0	.0	.0	5.6	73
Eastern hemlock	2.0	.0	.0	.0	2.0	100
Striped maple	391.5	51.4	16.7	18.0	477.6	20
Red maple	264.3	38.4	47.1	2.0	351.8	19
Mountain maple	570.5	141.5	63.0	9.0	784.0	18
Apple	13.8	.0	.0	.0	13.8	73
Mountain ash	89.0	.0	.0	.0	89.0	53
Hobblebush viburnum	585.4	206.0	32.6	27.7	851.7	18
Total readily browsed	1,922.1	437.3	159.4	56.7	2,575.5	10
Balsam fir	1,270.5	6.1	10.8	.0	1,287.4	16
Sugar maple	914.4	95.2	3.6	.0	1,013.2	28
Shadbush	14.3	.0	.0	.0	14.3	87
Yellow birch	226.5	85.8	39.6	.0	351.9	23
Paper birch	173.4	20.3	5.6	24.4	223.7	28
Red-Osier dogwood	37.8	.0	20.8	.0	58.6	62
American hazelnut	114.6	26.0	.0	.0	140.6	49
Beaked hazelnut	65.7	14.0	.0	43.3	123.0	50
Beech	242.6	.0	.0	.0	242.6	36
White ash	58.8	32.4	9.0	.0	100.2	57
Black ash	7.7	.0	.0	.0	7.7	71
Honeysuckle	71.1	5.7	.0	.0	76.8	39
Balsam poplar	12.2	.0	.0	.0	12.2	100
Bigtooth aspen	2.0	.0	.0	.0	2.0	100
Quaking aspen	42.4	5.4	2.1	.0	49.9	42
Pin cherry	127.4	19.4	.0	.0	146.8	28
Black cherry	41.1	1.8	1.8	1.8	46.5	43
Chokecherry	84.6	.0	2.0	.0	86.6	54
Brambles	3,520.6	41.0	82.3	.0	3,643.9	25
Willows	27.4	.0	.0	.0	27.4	55
Common elderberry	24.9	11.8	.0	.0	36.7	49
Red-berried elder	58.4	.0	2.0	2.0	62.4	82
American elm	11.1	.0	.0	.0	11.1	62
Blueberries	413.8	107.4	.0	.0	521.2	51
Wild raisin	37.8	20.1	.0	.0	57.9	50
Small cranberry	14.8	.0	.0	.0	14.8	93
Total commonly browsed	7,615.9	492.4	179.6	71.5	8,359.4	13

Table 40.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Tamarack	5.9	.0	.0	.0	5.9	76
White spruce	13.5	.0	.0	.0	13.5	56
Black spruce	5.4	.0	.0	.0	5.4	100
Red spruce	454.1	1.9	21.6	2.0	479.6	33
Speckled alder	255.4	.0	9.0	.0	264.4	40
Gray birch	5.8	.0	.0	.0	5.8	58
Lambkill	26.6	.0	.0	.0	26.6	74
Labrador tea	17.6	.0	.0	.0	17.6	100
Eastern hophornbeam	2.0	.0	.0	.0	2.0	100
Spiraea	356.6	.0	.0	.0	356.6	36
Total infrequently browsed	1,142.9	1.9	30.6	2.0	1,177.4	21
Gooseberries	33.1	.0	.0	.0	33.1	47
Total questionable	33.1	.0	.0	.0	33.1	47
Other species	240.5	.0	7.8	.0	248.3	37
Total all species	10,954.5	931.6	377.4	130.2	12,393.7	9.2
Sampling error (percent)	10	18	27	46	9.2	

Table 41.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Grafton County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	2,017	2,661	2,234	999	758	350	274	49	106	0	9,448	27
Butternut	0	0	0	0	47	23	0	23	0	0	93	100
Apple	140	302	0	0	0	0	0	0	20	0	462	67
Eastern hophornbeam	95	219	33	79	0	0	0	0	0	0	426	49
Black cherry	737	572	283	186	0	0	0	0	0	0	1,778	34
White oak	0	0	0	0	62	0	0	0	16	0	78	100
Northern red oak	5,290	3,228	1,694	597	467	184	210	23	38	13	11,744	31
Mountain ash	585	0	0	0	0	0	0	0	0	0	585	62
Total, all species	8,864	6,982	4,244	1,861	1,334	557	484	95	180	13	24,614	17.2
Sampling error (percent)	23	23	23	24	25	26	36	49	40	100	17.2	

Table 42.--Number of standing dead trees on timberland by species, condition, and diameter class, Grafton County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	2,126	149	74	2,349	4,939	87	0	5,026	7,375	28
Tamarack	328	22	0	350	0	0	0	0	350	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	4,898	255	75	5,228	3,203	130	0	3,333	8,561	28
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	375	0	23	398	1,218	46	68	1,332	1,730	35
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	275	0	0	275	138	0	0	138	413	62
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	8,002	426	172	8,600	9,498	263	68	9,829	18,429	20
Sugar maple	0	0	0	0	269	127	45	441	441	64
Red maple	0	0	0	0	540	84	46	670	670	51
Yellow birch	675	45	25	745	1,166	123	66	1,355	2,100	30
Paper birch	443	0	0	443	635	68	37	740	1,183	40
Gray birch	414	0	0	414	516	0	0	516	930	51
Beech	100	0	38	138	283	193	176	652	790	32
White ash	139	0	0	139	0	0	0	0	139	57
Black ash	46	0	0	46	0	0	0	0	46	100
Aspen	149	80	0	229	1,158	88	0	1,246	1,475	40
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	23	23	220	0	15	235	258	86
Basswood	0	0	19	19	0	70	0	70	89	81
Elm	50	0	0	50	105	93	96	294	344	57
Other hardwoods[a]	286	0	0	286	760	0	0	760	1,046	36
Total hardwoods	2,302	125	105	2,532	5,652	846	481	6,979	9,511	14
Total, all species	10,304	551	277	11,132	15,150	1,109	549	16,808	27,940	13.5
Sampling error (percent)	20	36	36	20	14	26	25	13	13.5	

[a]Includes noncommercial hardwoods.

Table 43.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Grafton County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Eastern hemlock	61.9	.0	2.0	.0	63.9	52
Striped maple	383.4	48.2	4.0	.0	435.6	21
Red maple	409.1	53.8	43.0	.0	505.9	19
Mountain maple	115.3	16.0	.0	.0	131.3	42
Mountain ash	19.4	.0	12.2	.0	31.6	51
Hobblebush viburnum	179.0	32.6	2.0	.0	213.6	35
Total readily browsed	1,168.1	150.6	63.2	.0	1,381.9	12
Balsam fir	1,218.6	28.2	.0	2.2	1,249.0	24
White pine	66.7	2.0	2.0	.0	70.7	29
Sugar maple	444.0	54.8	.0	.0	498.8	23
Shadbush	40.0	.0	.0	.0	40.0	64
Yellow birch	97.8	12.0	.0	.0	109.8	30
Paper birch	252.9	80.9	2.0	.0	335.8	28
Red-Osier dogwood	4.0	.0	.0	.0	4.0	100
Hawthorn	18.2	.0	.0	.0	18.2	71
American hazelnut	44.8	.0	.0	.0	44.8	54
Beaked hazelnut	19.4	.0	.0	.0	19.4	59
Beech	400.5	10.5	15.9	.0	426.9	21
White ash	188.6	33.7	2.0	.0	224.3	23
Black ash	12.6	.0	.0	.0	12.6	59
Honeysuckle	61.9	.0	.0	.0	61.9	46
Balsam poplar	2.2	.0	8.7	.0	10.9	100
Bigtooth aspen	.0	10.0	.0	.0	10.0	100
Quaking aspen	68.8	13.6	.0	.0	82.4	30
Pin cherry	114.6	10.9	.0	.0	125.5	71
Black cherry	126.9	6.0	6.1	.0	139.0	29
Chokecherry	18.0	2.0	2.0	.0	22.0	75
White oak	6.0	.0	.0	.0	6.0	74
Roses	.0	2.0	.0	.0	2.0	100
Brambles	438.5	4.1	.0	.0	442.6	34
Willows	10.9	.0	.0	.0	10.9	100
Common elderberry	.0	2.0	.0	.0	2.0	100
Red-berried elder	2.0	.0	8.0	.0	10.0	100
American elm	6.5	.0	.0	.0	6.5	73
Blueberries	38.7	4.3	.0	.0	43.0	46
Sweetfern	10.5	.0	.0	.0	10.5	73
Maple-leaf viburnum	64.1	10.9	.0	.0	75.0	50
Wild raisin	23.9	.0	.0	.0	23.9	100
Total commonly browsed	3,801.6	287.9	46.7	2.2	4,138.4	9

Table 43.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
White spruce	2.0	.0	.0	.0	2.0	100
Red spruce	402.3	6.5	.0	.0	408.8	25
Speckled alder	1.4	.0	.0	.0	1.4	100
Gray birch	45.9	6.5	.0	.0	52.4	40
Eastern hophornbeam	40.8	.0	.0	.0	40.8	51
Red oak	42.6	2.0	8.4	.0	53.0	26
Spiraea	124.5	52.9	.0	.0	177.4	49
Total infrequently browsed	659.5	67.9	8.4	.0	735.8	19
Witch-hazel	32.1	.0	13.0	.0	45.1	58
Gooseberries	18.0	.0	.0	.0	18.0	57
Total questionable	50.1	.0	13.0	.0	63.1	44
Other species	158.3	10.1	.0	.0	168.4	42
Total all species	5,837.6	516.5	131.3	2.2	6,487.6	6.5
Sampling error (percent)	7	20	29	100	6.5	

Table 44.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Hillsboro County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Hickory	66	0	0	0	0	0	0	0	0	0	66	71
Beech	780	484	332	177	174	97	64	0	45	8	2,161	34
Eastern hophornbeam	66	308	33	0	0	0	0	0	0	0	407	63
Pin cherry	0	141	0	0	0	0	0	0	0	0	141	100
Black cherry	722	126	145	0	0	0	0	0	0	0	993	38
White oak	1,767	513	114	107	55	60	0	0	0	23	2,639	37
Scarlet oak	735	428	364	165	0	31	25	0	26	0	1,774	63
Chestnut oak	561	574	304	126	0	0	0	0	0	0	1,565	69
Northern red oak	1,921	2,048	1,823	844	397	212	140	16	122	0	7,523	26
Black oak	670	978	730	449	125	93	46	0	62	0	3,153	29
Total, all species	7,288	5,600	3,845	1,868	751	493	275	16	255	31	20,422	13.5
Sampling error (percent)	18	18	21	18	27	28	27	100	38	79	13.5	

Table 45.--Number of standing dead trees on timberland by species, condition, and diameter class, Hillsboro County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	0	0	0	0	0	0	0	0	0	0
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	36	0	18	54	18	0	0	18	72	100
Red pine	16	0	0	16	0	0	0	0	16	100
White pine	1,702	55	0	1,757	1,254	116	137	1,507	3,264	40
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	297	16	0	313	51	34	13	98	411	65
Other softwoods	214	0	0	214	0	33	0	33	247	88
Total softwoods	2,265	71	18	2,354	1,323	183	150	1,656	4,010	33
Sugar maple	0	0	0	0	33	0	16	49	49	73
Red maple	99	0	0	99	197	33	38	268	367	38
Yellow birch	0	0	0	0	0	0	0	0	0	0
Paper birch	191	0	0	191	69	0	13	82	273	61
Gray birch	0	0	0	0	0	0	0	0	0	0
Beech	0	0	0	0	0	41	0	41	41	100
White ash	0	0	0	0	0	0	0	0	0	0
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	33	0	0	33	33	0	0	33	66	69
White oaks	32	0	0	32	358	0	0	358	390	77
Red oaks	32	44	0	76	242	0	17	259	335	37
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	66	0	0	66	119	17	0	136	202	67
Other hardwoods[a]	32	0	0	32	0	16	17	33	65	61
Total hardwoods	485	44	0	529	1,051	107	101	1,259	1,788	23
Total, all species	2,750	115	18	2,883	2,374	290	251	2,915	5,798	23.1
Sampling error (percent)	33	53	100	31	25	35	28	21	23.1	

[a]Includes noncommercial hardwoods.

Table 46.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Hillsboro County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Canada yew	8.6	.0	.0	.0	8.6	100
Eastern hemlock	61.0	.0	.0	.0	61.0	30
Striped maple	51.0	7.2	.0	.0	58.2	49
Red maple	282.7	1.4	.0	.0	284.1	17
Smooth sumac	12.5	.0	.0	.0	12.5	100
Staghorn sumac	7.2	.0	.0	.0	7.2	100
Hobblebush viburnum	25.4	.0	.0	.0	25.4	71
Total readily browsed	448.4	8.6	.0	.0	457.0	14
Common juniper	199.1	.0	.0	.0	199.1	72
White pine	95.6	.0	.0	.0	95.6	33
Sugar maple	36.9	1.1	.0	.0	38.0	44
Shadbush	21.0	7.0	.0	8.4	36.4	63
Yellow birch	22.0	.0	.0	.0	22.0	45
Black birch	45.9	.0	.0	.0	45.9	76
Paper birch	14.4	.0	.0	.0	14.4	71
Red-Osier dogwood	8.4	.0	.0	.0	8.4	100
American hazelnut	12.8	.0	.0	.0	12.8	65
Beaked hazelnut	2.9	.0	.0	.0	2.9	69
Beech	62.6	5.9	.0	.0	68.5	32
White ash	57.0	2.9	.0	.0	59.9	36
Black ash	5.6	.0	.0	.0	5.6	79
Winterberry	56.0	.0	.0	.0	56.0	100
Honeysuckle	1.4	.0	.0	.0	1.4	100
Mountain holly	4.4	1.4	.0	.0	5.8	100
Quaking aspen	2.5	4.3	.0	9.6	16.4	92
Pin cherry	17.5	4.3	.0	.0	21.8	52
Black cherry	28.4	.0	.0	.0	28.4	43
Chokecherry	21.4	.0	.0	.0	21.4	59
White oak	30.7	.0	10.1	.0	40.8	66
Brambles	82.4	.0	.0	.0	82.4	47
American elm	1.4	.0	.0	.0	1.4	100
Blueberries	350.3	20.0	.0	.0	370.3	43
Sweetfern	.0	1.4	.0	.0	1.4	100
Maple-leaf viburnum	48.0	4.3	.0	.0	52.3	72
Wild raisin	10.1	.0	.0	.0	10.1	87
Total commonly browsed	1,238.7	52.6	10.1	18.0	1,319.4	18

Table 46.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Red spruce	1.4	.0	.0	.0	1.4	100
Speckled alder	7.1	.0	.0	.0	7.1	72
Gray birch	13.0	7.2	.0	.0	20.2	61
Lambkill	22.4	.0	.0	.0	22.4	57
Eastern hophornbeam	8.6	.0	.0	.0	8.6	85
Red oak	86.0	5.6	.0	.0	91.6	33
Spiraea	8.5	.0	.0	.0	8.5	44
Total infrequently browsed	147.0	12.8	.0	.0	159.8	22
Witch-hazel	105.7	8.6	5.7	.0	120.0	33
Gooseberries	6.4	.0	.0	.0	6.4	59
Total questionable	112.1	8.6	5.7	.0	126.4	32
Other species	446.8	1.4	2.9	7.2	458.3	32
Total all species	2,393.0	84.0	18.7	25.2	2,520.9	11.7
Sampling error (percent)	12	37	63	58	11.7	

Table 47.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Merrimack County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Hickory	0	0	74	53	0	0	0	0	0	0	127	100
Beech	1,568	665	280	358	152	170	17	0	0	0	3,210	37
Apple	136	68	0	0	0	0	0	0	0	0	204	100
Eastern hophornbeam	35	173	0	54	0	0	0	0	0	0	262	71
Pin cherry	68	0	0	0	0	17	0	0	0	0	85	100
Black cherry	732	17	51	47	17	0	0	0	0	0	864	39
White oak	858	655	202	333	125	110	42	19	10	0	2,354	31
Scarlet oak	34	196	215	101	56	0	21	20	0	0	643	62
Chestnut oak	68	136	35	17	0	0	0	0	0	0	256	100
Northern red oak	1,874	2,135	1,254	1,123	546	84	155	20	39	0	7,230	18
Black oak	102	222	143	112	258	0	0	0	0	0	837	37
Total, all species	5,475	4,267	2,254	2,198	1,154	381	235	59	49	0	16,072	12.1
Sampling error (percent)	20	15	20	18	20	26	34	58	49	-	12.1	

Table 48.--Number of standing dead trees on timberland by species, condition, and diameter class, Merrimack County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	17	0	0	17	407	0	17	424	441	67
Tamarack	0	55	0	55	0	0	0	0	55	100
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	597	0	0	597	167	37	0	204	801	62
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	1,051	34	75	1,160	570	17	26	613	1,773	21
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	34	0	62	96	115	17	17	149	245	42
Other softwoods	441	45	0	486	72	0	26	98	584	78
Total softwoods	2,140	134	137	2,411	1,331	71	86	1,488	3,899	20
Sugar maple	241	0	0	241	121	0	0	121	362	56
Red maple	556	48	0	604	447	56	25	528	1,132	44
Yellow birch	0	0	0	0	34	0	0	34	34	100
Paper birch	68	0	0	68	807	92	22	921	989	42
Gray birch	68	0	0	68	294	0	0	294	362	73
Beech	0	41	0	41	33	0	0	33	74	70
White ash	33	0	0	33	233	0	0	233	266	65
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	102	0	0	102	353	0	0	353	455	66
White oaks	0	0	26	26	34	0	0	34	60	71
Red oaks	136	0	0	136	134	0	0	134	270	61
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	68	0	4	72	34	0	29	63	135	77
Other hardwoods[a]	165	0	0	165	33	0	17	50	215	65
Total hardwoods	1,437	89	30	1,556	2,557	148	93	2,798	4,354	20
Total, all species	3,577	223	167	3,967	3,888	219	179	4,286	8,253	13.0
Sampling error (percent)	23	43	35	21	20	43	31	19	13.0	

[a]Includes noncommercial hardwoods.

Table 49.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Merrimack County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Eastern hemlock	124.6	.0	.0	.0	124.6	30
Striped maple	45.8	4.3	4.4	.0	54.5	41
Red maple	373.6	15.7	39.2	2.9	431.4	19
Staghorn sumac	3.0	.0	.0	.0	3.0	100
Hobblebush viburnum	13.3	.0	.0	.0	13.3	48
Total readily browsed	560.3	20.0	43.6	2.9	626.8	13
Balsam fir	29.7	.0	.0	.0	29.7	43
Common juniper	11.9	.0	.0	.0	11.9	63
White pine	169.1	3.0	.0	.0	172.1	34
Sugar maple	23.7	.0	.7	.0	24.4	30
Shadbush	17.6	6.1	.0	.0	23.7	50
Yellow birch	29.5	.0	5.8	.0	35.3	37
Black birch	32.4	1.5	.0	.0	33.9	42
Paper birch	73.3	27.9	1.5	.0	102.7	37
Hawthorn	2.9	.0	.0	.0	2.9	100
American hazelnut	19.4	12.1	3.8	.0	35.3	60
Beaked hazelnut	11.8	.0	.0	.0	11.8	69
Beech	36.5	1.4	4.4	.0	42.3	33
White ash	49.6	.0	1.5	.0	51.1	48
Black ash	6.0	.0	.0	.0	6.0	100
Honeysuckle	34.0	.0	.0	.0	34.0	78
Bigtooth aspen	13.4	.0	.0	.0	13.4	45
Quaking aspen	20.6	1.5	.0	.0	22.1	51
Pin cherry	53.5	10.4	.0	.0	63.9	56
Black cherry	67.0	.0	.0	.0	67.0	50
Chokecherry	31.1	.0	.0	.0	31.1	61
White oak	66.6	3.0	.0	.0	69.6	40
Brambles	250.0	.0	.0	.0	250.0	36
American elm	17.9	.0	.0	.0	17.9	84
Blueberries	257.1	3.0	5.8	.0	265.9	59
Sweetfern	3.0	.0	.0	.0	3.0	100
Maple-leaf viburnum	148.7	5.8	.0	.0	154.5	49
Wild raisin	17.9	10.3	.0	.0	28.2	50
Total commonly browsed	1,494.2	86.0	23.5	.0	1,603.7	16

Table 49.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Red spruce	41.3	.0	.0	.0	41.3	36
Pitch pine	1.5	.0	.0	.0	1.5	100
Speckled alder	36.9	.0	.0	.0	36.9	55
Gray birch	109.6	14.9	.0	.0	124.5	37
Lambkill	1.4	.0	.0	.0	1.4	100
Eastern hophornbeam	3.7	.0	.0	.0	3.7	60
Red oak	103.6	11.7	1.5	.0	116.8	25
Spiraea	73.8	.0	.0	.0	73.8	43
Total infrequently browsed	371.8	26.6	1.5	.0	399.9	16
Witch-hazel	76.0	.7	10.4	.0	87.1	28
Total questionable	76.0	.7	10.4	.0	87.1	28
Other species	164.9	33.9	.0	16.4	215.2	23
Total all species	2,667.2	167.2	79.0	19.3	2,932.7	10.4
Sampling error (percent)	11	34	53	86	10.4	

Table 50.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Rockingham County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Eastern redcedar	558	0	0	0	0	0	0	0	0	0	558	88
Hickory	551	542	515	67	0	66	24	0	0	0	1,765	49
Beech	487	128	144	129	64	0	32	0	13	0	997	48
Eastern hophornbeam	202	109	0	0	0	0	0	0	0	0	311	100
Black cherry	67	131	145	49	42	33	0	0	0	0	467	86
White oak	732	822	255	272	93	33	22	0	0	0	2,229	33
Chestnut oak	0	0	34	54	53	0	0	0	0	0	141	100
Northern red oak	2,494	1,654	870	448	230	139	64	34	48	0	5,981	28
Black oak	1,325	606	594	546	83	83	41	0	0	0	3,278	35
Total, all species	6,416	3,992	2,557	1,565	565	354	183	34	61	0	15,727	15.7
Sampling error (percent)	20	23	26	28	33	35	35	100	59	-	15.7	

Table 51.--Number of standing dead trees on timberland by species, condition, and diameter class, Rockingham County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	0	0	0	0	0	0	0	0	0	0
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	0	0	0	0	0	0	0	0	0	0
Red pine	0	0	0	0	34	0	0	34	34	100
White pine	1,335	92	34	1,461	542	86	17	645	2,106	34
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	85	0	30	115	0	34	30	64	179	42
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	1,420	92	64	1,576	576	120	47	743	2,319	31
Sugar maple	0	0	0	0	0	0	0	0	0	0
Red maple	79	0	0	79	405	0	0	405	484	57
Yellow birch	0	0	0	0	149	0	0	149	149	100
Paper birch	0	0	0	0	0	0	0	0	0	0
Gray birch	211	0	0	211	102	0	0	102	313	61
Beech	0	0	0	0	0	0	0	0	0	0
White ash	0	0	0	0	0	0	0	0	0	0
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	0	0	0	0	34	0	0	34	34	100
White oaks	68	0	0	68	0	0	0	0	68	100
Red oaks	344	0	0	344	68	0	0	68	412	55
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	123	0	0	123	0	0	0	0	123	71
Other hardwoods[a]	591	0	0	591	34	0	0	34	625	89
Total hardwoods	1,416	0	0	1,416	792	0	0	792	2,208	36
Total, all species	2,836	92	64	2,992	1,368	120	47	1,535	4,527	21.8
Sampling error (percent)	31	69	71	29	32	45	74	29	21.8	

[a]Includes noncommercial hardwoods.

Table 52.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Rockingham County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Eastern hemlock	51.0	.0	.0	.0	51.0	38
Striped maple	1.5	.0	.0	.0	1.5	100
Red maple	143.1	51.9	.0	.0	195.0	31
Mountain maple	14.0	.0	.0	.0	14.0	100
Hobblebush viburnum	5.9	.0	.0	.0	5.9	78
Total readily browsed	215.5	51.9	.0	.0	267.4	23
Common juniper	25.2	.0	.0	.0	25.2	73
White pine	60.4	1.5	.0	.0	61.9	24
Sugar maple	26.7	2.9	1.5	.0	31.1	37
Shadbush	159.9	2.9	.0	.0	162.8	53
Yellow birch	10.4	.0	.0	.0	10.4	50
Black birch	5.8	1.5	.0	.0	7.3	52
Paper birch	15.9	.0	.0	.0	15.9	60
Hawthorn	1.5	.0	.0	.0	1.5	100
American hazelnut	26.8	7.4	.0	.0	34.2	53
Beaked hazelnut	45.9	54.0	.0	.0	99.9	66
Beech	24.9	.0	.0	.0	24.9	36
White ash	26.8	.0	.0	.0	26.8	37
Winterberry	14.8	.0	.0	.0	14.8	100
Bigtooth aspen	4.8	.0	.0	.0	4.8	100
Quaking aspen	10.4	17.8	.0	.0	28.2	63
Black cherry	63.7	4.3	.0	.0	68.0	28
Chokecherry	23.1	.0	.0	.0	23.1	94
White oak	31.0	.0	.0	.0	31.0	32
Roses	5.7	1.5	.0	.0	7.2	72
Brambles	162.9	.0	.0	.0	162.9	67
Willows	1.5	.0	.0	.0	1.5	100
Common elderberry	1.5	.0	.0	.0	1.5	100
American elm	7.3	.0	.0	.0	7.3	83
Blueberries	423.0	1.5	16.3	.0	440.8	41
Maple-leaf viburnum	41.4	.0	.0	.0	41.4	64
Wild raisin	13.3	.0	.0	.0	13.3	59
Total commonly browsed	1,234.6	95.3	17.8	.0	1,347.7	20

Table 52.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Speckled alder	14.6	9.4	.0	.0	24.0	55
Black chokeberry	46.6	.0	.0	.0	46.6	100
Gray birch	35.6	.0	4.4	.0	40.0	47
Lambkill	24.6	.0	.0	.0	24.6	75
Eastern hophornbeam	8.9	.0	.0	.0	8.9	85
Red oak	36.6	3.0	.0	.0	39.6	27
Spiraea	56.4	25.4	.0	.0	81.8	65
Total infrequently browsed	223.3	37.8	4.4	.0	265.5	39
Witch-hazel	74.0	.0	.0	.0	74.0	61
Total questionable	74.0	.0	.0	.0	74.0	61
Other species	292.1	26.6	3.0	.0	321.7	31
Total all species	2,039.5	211.6	25.2	.0	2,276.3	14.6
Sampling error (percent)	15	37	66	-	14.6	

Table 53.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Strafford County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Hickory	71	35	0	0	0	0	0	0	0	0	106	100
Beech	931	525	421	314	132	67	0	0	32	0	2,422	34
Apple	115	0	0	0	0	0	0	0	0	0	115	100
Eastern hophornbeam	32	0	0	0	0	0	0	0	0	0	32	100
Pin cherry	25	0	0	0	0	0	0	0	0	0	25	100
Black cherry	0	0	0	34	0	0	0	0	0	0	34	71
White oak	693	138	92	99	0	18	17	0	0	0	1,057	74
Scarlet oak	0	0	0	0	37	0	0	0	0	0	37	100
Northern red oak	1,084	969	433	218	274	210	55	0	46	11	3,300	27
Black oak	526	336	0	0	17	0	0	0	0	0	879	42
Total, all species	3,477	2,003	946	665	460	295	72	0	78	11	8,007	18.4
Sampling error (percent)	25	29	32	36	30	37	63	-	50	100	18.4	

Table 54.--Number of standing dead trees on timberland by species, condition, and diameter class, Strafford County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	0	0	0	0	587	0	0	587	587	55
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	38	0	0	38	167	0	0	167	205	51
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	66	0	0	66	789	52	16	857	923	40
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	0	0	0	0	0	0	0	0	0	0
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	104	0	0	104	1,543	52	16	1,611	1,715	31
Sugar maple	0	0	0	0	0	0	0	0	0	0
Red maple	92	0	9	101	354	96	46	496	597	60
Yellow birch	0	0	16	16	278	0	0	278	294	58
Paper birch	227	0	0	227	35	16	0	51	278	81
Gray birch	0	0	0	0	0	0	0	0	0	0
Beech	38	0	0	38	0	0	0	0	38	100
White ash	0	0	0	0	0	0	0	0	0	0
Black ash	0	0	0	0	0	0	0	0	0	0
Aspen	102	0	0	102	118	0	0	118	220	51
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	32	0	0	32	32	100
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	32	0	0	32	32	16	0	48	80	79
Other hardwoods[a]	32	0	0	32	36	0	0	36	68	71
Total hardwoods	523	0	25	548	885	128	46	1,059	1,607	28
Total, all species	627	0	25	652	2,428	180	62	2,670	3,322	25.3
Sampling error (percent)	38	-	65	37	29	80	78	31	25.3	

[a]Includes noncommercial hardwoods.

Table 55.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Stratford County, New Hampshire, 1983.

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Canada yew	5.6	.0	.0	.0	5.6	100
Eastern hemlock	45.3	.0	.0	.0	45.3	45
Striped maple	1.7	.0	.0	.0	1.7	100
Red maple	83.8	4.6	5.9	14.2	108.5	29
Mountain maple	12.6	.0	.0	.0	12.6	100
Hobblebush viburnum	25.2	.0	.0	.0	25.2	100
Total readily browsed	174.2	4.6	5.9	14.2	198.9	
Balsam fir	26.6	1.4	18.6	.0	46.6	60
Common juniper	15.5	.0	.0	.0	15.5	100
White pine	47.0	.0	.0	.0	47.0	36
Sugar maple	4.2	3.7	.0	.0	7.9	55
Shadbush	17.9	.0	.0	.0	17.9	92
Yellow birch	9.0	.0	.0	.0	9.0	44
Black birch	1.4	.0	.0	.0	1.4	100
Paper birch	5.9	.0	.0	.0	5.9	80
Beaked hazelnut	8.4	1.4	.0	.0	9.8	64
Beech	14.2	2.9	.0	.0	17.1	45
White ash	13.9	.0	.0	.0	13.9	88
Black ash	2.8	.0	.0	.0	2.8	100
Winterberry	3.1	7.8	.0	4.6	15.5	70
Honeysuckle	2.1	.0	.0	.0	2.1	100
Mountain holly	.0	.0	.0	16.8	16.8	100
Quaking aspen	20.7	.0	.0	.0	20.7	85
Pin cherry	.0	.0	3.0	.0	3.0	100
Black cherry	25.8	.0	.0	.0	25.8	47
White oak	21.6	.0	.0	.0	21.6	44
Roses	1.5	.0	.0	.0	1.5	100
Brambles	11.6	.0	.0	.0	11.6	61
Blueberries	226.8	.0	20.1	18.2	265.1	63
Wild raisin	74.5	1.6	.0	.0	76.1	69
Total commonly browsed	554.5	18.8	41.7	39.6	654.6	31

Table 55.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Red spruce	1.4	.0	.0	.0	1.4	100
Speckled alder	6.2	4.6	.0	.0	10.8	40
Gray birch	20.6	7.6	37.3	14.9	80.4	83
Lambkill	1.5	.0	.0	.0	1.5	100
Red oak	16.5	.0	.0	.0	16.5	47
Spiraea	31.7	1.6	.0	42.7	76.0	25
Total infrequently browsed	77.9	13.8	37.3	57.6	186.6	42
Witch-hazel	25.8	.0	.0	.0	25.8	57
Total questionable	25.8	.0	.0	.0	25.8	57
Other species	50.1	.0	.0	3.1	53.2	25
Total all species	882.5	37.2	84.9	114.5	1,119.1	18.8
Sampling error (percent)	23	37	61	44	18.8	

Table 56.--Number of all live nut- and fruit-producing trees on timberland by species and diameter class, Sullivan County, New Hampshire, 1983

Species	Diameter class (inches at breast height)										All classes	Sampling error
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29+		
	Thousand trees											Percent
Beech	838	914	188	0	122	90	62	34	28	0	2,276	27
Eastern hophornbeam	545	308	33	0	0	0	0	0	0	0	886	47
Black cherry	256	137	182	125	33	33	0	0	0	0	766	100
Chokecherry	33	0	0	0	0	0	0	0	0	0	33	100
Northern red oak	290	500	100	97	60	16	23	16	0	0	1,102	100
Mountain ash	0	0	0	17	0	0	0	0	0	0	17	100
Total, all species	1,962	1,859	503	239	215	139	85	50	28	0	5,080	19.3
Sampling error (percent)	29	23	38	59	47	43	47	57	71	0	19.3	

Table 57.--Number of standing dead trees on timberland by species, condition, and diameter class, Sullivan County, New Hampshire, 1983

Species	Intact top				Broken top				Total all trees	Sampling error
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
	Thousand trees									Percent
Balsam fir	0	97	0	97	132	0	0	132	229	61
Tamarack	0	0	0	0	0	0	0	0	0	0
White spruce	0	0	0	0	0	0	0	0	0	0
Black spruce	0	0	0	0	0	0	0	0	0	0
Red spruce	360	17	0	377	427	17	0	444	821	43
Red pine	0	0	0	0	0	0	0	0	0	0
White pine	47	17	0	64	638	109	95	842	906	44
Northern white-cedar	0	0	0	0	0	0	0	0	0	0
Hemlock	32	17	30	79	65	17	0	82	161	42
Other softwoods	0	0	0	0	0	0	0	0	0	0
Total softwoods	439	148	30	617	1,262	143	95	1,500	2,117	25
Sugar maple	32	0	7	39	187	16	23	226	265	54
Red maple	33	0	0	33	296	17	56	369	402	35
Yellow birch	33	0	0	33	504	49	33	586	619	59
Paper birch	34	0	0	34	192	49	0	241	275	61
Gray birch	66	0	0	66	0	0	0	0	66	71
Beech	520	66	20	606	284	33	33	350	956	58
White ash	65	0	0	65	163	43	23	229	294	70
Black ash	0	0	0	0	65	0	0	65	65	100
Aspen	0	17	0	17	170	0	0	170	187	60
White oaks	0	0	0	0	0	0	0	0	0	0
Red oaks	0	0	0	0	0	0	0	0	0	0
Basswood	0	0	0	0	0	0	0	0	0	0
Elm	0	0	27	27	0	0	0	0	27	100
Other hardwoods[a]	33	17	0	50	514	17	14	545	595	37
Total hardwoods	816	100	54	970	2,375	224	182	2,781	3,751	23
Total, all species	1,255	248	84	1,587	3,637	367	277	4,281	5,868	16.7
Sampling error (percent)	46	53	71	40	19	29	32	17	16.7	

[a]Includes noncommercial hardwoods.

Table 58.--Number of shrubs, seedlings, and saplings on timberland by species, browse preference class, and browse utilization class, Sullivan County, New Hampshire, 1983

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Eastern hemlock	55.8	.0	.0	.0	55.8	40
Striped maple	163.6	8.6	.0	.0	172.2	37
Red maple	271.1	46.2	12.0	1.5	330.8	22
Mountain maple	7.5	.0	.0	.0	7.5	100
Apple	9.9	.0	.0	.0	9.9	100
Mountain ash	1.5	.0	.0	.0	1.5	100
Hobblebush viburnum	6.0	64.6	.0	.0	70.6	76
Total readily browsed	515.4	119.4	12.0	1.5	648.3	19
Balsam fir	62.0	.0	.0	.0	62.0	42
Common juniper	5.0	.0	.0	.0	5.0	100
White pine	15.5	1.5	.0	.0	17.0	68
Sugar maple	174.4	52.7	16.1	.0	243.2	37
Shadbush	1.5	.0	.0	.0	1.5	100
Yellow birch	20.5	8.6	.0	.0	29.1	47
Black birch	17.1	.0	.0	.0	17.1	100
Paper birch	40.9	1.5	.0	.0	42.4	41
Red-Osier dogwood	10.2	.0	.0	.0	10.2	87
Hawthorn	1.4	.0	.0	.0	1.4	100
Beaked hazelnut	.0	5.7	.0	.0	5.7	100
Beech	26.5	15.6	2.9	.0	45.0	36
White ash	59.0	17.0	.0	.0	76.0	38
Quaking aspen	7.1	.0	.0	.0	7.1	100
Pin cherry	7.3	.0	.0	.0	7.3	72
Black cherry	41.1	.0	.0	.0	41.1	39
Chokecherry	19.8	.0	.0	.0	19.8	100
Brambles	168.1	.0	.0	.0	168.1	44
Common elderberry	1.5	.0	.0	.0	1.5	100
Red-berried elder	2.8	.0	.0	.0	2.8	100
American elm	4.1	.0	.0	.0	4.1	76
Blueberries	20.6	.0	.0	.0	20.6	100
Sweetfern	19.1	.0	5.9	.0	25.0	78
Total commonly browsed	725.5	102.6	24.9	.0	853.0	15

Table 58.--Continued

Species and browse preference class	Browse utilization class				All classes	Sampling error
	None	Light	Moderate	Heavy		
	Million stems					Percent
Black spruce	1.5	.0	.0	.0	1.5	100
Red spruce	20.7	.0	.0	.0	20.7	41
Gray birch	7.1	.0	.0	1.5	8.6	85
Eastern hophornbeam	4.4	.0	.0	.0	4.4	58
Red oak	52.7	1.5	.0	.0	54.2	46
Spiraea	137.0	.0	.0	.0	137.0	57
Total infrequently browsed	223.4	1.5	.0	1.5	226.4	38
Witch-hazel	2.8	.0	.0	.0	2.8	100
Gooseberries	1.5	.0	.0	.0	1.5	100
Total questionable	4.3	.0	.0	.0	4.3	74
Other species	38.4	.0	.0	.0	38.4	66
Total all species	1,507.0	223.5	36.9	3.0	1,770.4	13.7
Sampling error (percent)	15	40	59	71	13.7	

Tree Species of New Hampshire (as encountered on field plots) (Powell and Dickson 198[illegible]

Scientific Name[a]	Common Name(s)	Occurrence[b]
	Softwoods	
Abies balsamea (L.) Mill.	balsam fir	vc
Juniperus virginiana L.	eastern redcedar	r
Larix laricina (Du Roi) K. Koch	tamarack, eastern larch	r
Picea glauca (Moench) Voss	white spruce	c
P. mariana (Mill.) B.S.P.	black spruce	r
P. rubens Sarg.	red spruce	vc
Pinus resinosa Ait.	red or Norway pine	r
P. rigida Mill.	pitch pine	c
P. strobus L.	eastern white pine	vc
Thuja occidentalis L.	northern white-cedar	r
Tsuga canadensis (L.) Carr.	eastern hemlock	vc
	Hardwoods	
Acer pensylvanicum L.[c]	striped maple, moosewood	r
A. rubrum L.	red, soft, or swamp maple	vc
A. saccharinum L.	silver or soft maple	vr
A. saccharum Marsh.	sugar, rock or hard maple	vc
A. spicatum Lam.[c]	mountain maple	vr
Betula alleghaniensis Britton	yellow birch	vc
B. lenta L.	sweet, black, or cherry birch	c
B. papyrifera Marsh.	paper, white or canoe birch	vc
B. populifolia Marsh.	gray birch	c
Carya spp. Nutt.	hickory	r
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black or brown ash	r
F. pennsylvanica Marsh.	green or red ash	vr
Juglans cinera L.[c]	butternut	r
Malus spp. Mill.[c]	apple	r
Ostrya virginiana (Mill.) K. Koch[c]	eastern hophornbeam, ironwood	r
Populus balsamifera L.	balsam poplar	r
P. grandidentata Michx.	bigtooth aspen, poplar, popple	c
P. tremuloides Michx.	quaking or trembling aspen	c
Prunus pensylvanica L.F.[c]	pin or fire cherry	r
P. serotina Ehrh.	black cherry	c
Quercus alba L.	white oak	c
Q. coccinea Muenchh.	scarlet oak	r
Q. prinus L.	chestnut oak	r
Q. rubra L.	northern red oak	vc
Q. velutina Lam.	black oak	c
Salix spp.	willows	vr
Tilia americana L.	american basswood	r
Ulmus americana L.	american elm	r

[a]Names according to: Little, Elbert L., Jr. Checklist of United States Trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 p.

[b]Occurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

[c]Noncommercial species.

Shrub, Vine, and Occasional Tree Species of New Hampshire (as encountered on field plots but not recorded as trees)

Scientific Name[a]	Common Name
Juniperus sp. L.	juniper
Taxus canadensis Marsh.	Canada yew
Ailanthus altissima (Mill.) Swingle	ailanthus
Alnus sp. Mill.	alder
A. rugosa (Du Roi) Spreng.	speckled alder
Amelanchier sp. Medic.	serviceberry
Aronia melanocarpa (Michx.) Ell.	black chokeberry
Carpinus caroliniana Walt.	American hornbeam
Carya cordiformis (Wangenh.) K. Koch	bitternut hickory
C. ovata (Mill.) K. Koch	shagbark hickory
Castanea dentata (Marsh.) Borkh.	American chestnut
Clematis verticillaris DC	purple clematis
Comptonia peregrina (L.) J. Coult.	sweetfern
Cornus alternifolia L. f.	alternate-leaf dogwood
C. amomum Mill.	silky dogwood
C. canadensis L.	bunchberry
C. florida L.	flowering dogwood
C. racemosa Lam.	gray or red-panicled dogwood
C. rogosa Lam.	round-leaved dogwood
C. stolonifera Michx.	red-osier dogwood
Corylus americana Marsh.	American hazelnut
C. cornuta Marsh.	beaked hazelnut
Crataegus sp. L.	hawthorn
Gaultheria hispidula R. Br.	creeping snowberry
G. procumbens L.	teaberry
Hamamelis virginiana L.	witch-hazel
Ilex montana (T. & G.) Gray	large-leaf holly
I. verticillata (L.) Gray	common winterberry
Kalmia angustifolia L.	sheep laurel
K. latifolia L.	mountain laurel
Ledum groenlandicum Oedr.	Labrador tea
Lindera benzoin (L.) Blume	common spicebush
Lonicera sp. L.	honeysuckle
Mitchella repens L.	partridgeberry
Nemopanthus mucronata (L.) Trel.	mountain holly
Parthenocissus guinguefolia (L.) Planch.	Virginia creeper
Physocarpus opulifolius (L.) Maxim.	ninebark
Platanus occidentalis L.	American sycamore
Prunus sp. L.	cherry, plum
P. virginiana L.	chokeberry
Quercus bicolor Willd.	swamp white oak
Rhamnus sp. L.	buckthorn
Rhododendron sp. L.	rhododendron, azalea
Rhus glabra L.	smooth sumac
R. radicans L.	poison ivy
R. typhina L.	staghorn sumac
Ribes sp. L.	currant, gooseberry
Rosa sp. L.	rose
Rubus sp. L.	briers, brambles
Sambucus canadensis L.	American elder

Scientific Name[a]	Common Name
S. pubens Michx.	red-berried elder
Sorbus americana Marsh.	American mountain ash
Spirea sp. L.	spirea
Staphylea trifolia L.	American bladdernut
Tilia sp. L.	basswood
Ulmus sp. L.	elm
Vaccinium sp. L.	blueberry
V. oxycoccos L.	small cranberry
Viburnum sp. L.	viburnum
V. acerifolium L.	maple-leaf viburnum
V. alnifolium Marsh.	hobblebush viburnum
V. cassinoides L.	wild raisin
V. dentatum L.	arrowwood
V. lentago L.	nannyberry
V. trilobum Marsh.	American cranberry bush
Vitis sp. L.	grape

[a]Names according to: Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service; 1979. 375 p., and Symonds, George W.D. The Shrub Identification Book. New York: William Morrow & Co; 1963. 379 p.

Relative Density and Frequency and Importance Values of Lesser Woody Stems[a] by Geographic Unit and Species, New Hampshire, 1983

Species	Northern Unit			Southern Unit			State total		
	Density	Frequency	Importance value	Density	Frequency	Importance value	Density	Frequency	Importance value
Balsam fir	12.3	55.1	67.4	1.3	9.3	10.6	8.0	29.6	37.6
Juniper	.1	.1	.1	2.2	5.6	7.8	.9	3.1	4.0
Tamarack	.1	.8	.9	.1	.1	.1	.1	.4	.5
White spruce	.1	2.0	2.1	.1	.1	.1	.1	.9	1.0
Black spruce	.1	.4	.5	.1	.7	.7	.1	.6	.6
Red spruce	4.3	36.1	40.4	.9	11.4	12.4	3.0	22.3	25.3
Red pine	.1	.8	.9	.2	1.6	1.7	.1	1.3	1.4
Pitch pine	.1	.4	.5	.1	.4	.4	.1	.4	.5
Eastern white pine	.7	13.6	14.3	4.5	39.1	43.7	2.2	27.8	30.0
Canada yew	.1	.1	.1	.2	1.0	1.2	.1	.6	.7
Northern white-cedar	.1	.8	.9	.1	.1	.1	.1	.4	.5
Eastern hemlock	1.0	12.1	13.1	3.4	29.6	33.0	1.9	21.8	23.8
Striped maple	5.1	35.3	40.4	3.2	14.5	17.7	4.4	23.7	28.1
Red maple	5.0	44.2	49.2	12.1	68.7	80.8	7.7	57.9	65.6
Silver maple	.1	.8	.9	.1	.4	.4	.1	.6	.6
Sugar maple	7.9	38.4	46.3	3.9	25.6	29.5	6.4	31.3	37.6
Mountain maple	4.3	24.1	28.4	.7	1.9	2.6	2.9	11.7	14.7
Alder sp.	.6	3.2	3.7	.7	2.8	3.5	.6	3.0	3.6
Speckled alder	1.3	4.7	6.0	.8	4.7	5.5	1.1	4.7	5.8
Serviceberry	.4	3.2	3.6	2.0	8.1	10.1	1.0	5.9	6.9
Black chokecherry	.1	.1	.1	.4	1.0	1.4	.2	.6	.8
Yellow birch	2.5	27.6	30.1	1.8	17.6	19.4	2.3	22.0	24.3
Sweet birch	.1	.1	.1	1.0	9.3	10.2	.4	5.2	5.6
Paper birch	2.7	25.6	28.4	2.2	20.1	22.2	2.5	22.5	25.0
Gray birch	.4	6.3	6.7	2.1	11.1	13.3	1.1	9.0	10.1
American hornbeam	.1	.1	.1	.3	1.3	1.5	.1	.7	.9
Hickory	.1	.1	.1	.2	1.3	1.4	.1	.7	.8
Bitternut hickory	.1	.1	.1	.1	.7	.7	.1	.4	.5
Shagbark hickory	.1	.1	.1	.3	3.1	3.4	.2	1.8	1.9
American chestnut	.1	.1	.1	.4	2.8	3.2	.2	1.6	1.8
Purple clematis	.1	.4	.5	.1	.1	.1	.1	.2	.3
Sweetfern	.1	.8	.9	.6	1.9	2.5	.3	1.4	1.7
Flowering dogwood	.1	.1	.1	.1	.4	.5	.1	.2	.3
Alternate-leaf dogwood	.2	2.0	2.2	.4	1.9	2.2	.2	1.9	2.2
Silky dogwood	.1	.1	.1	.1	.4	.4	.1	.2	.3
Round-leaf dogwood	.1	.4	.5	.1	.4	.4	.1	.4	.5
Panicled dogwood	.1	.1	.1	.1	.4	.4	.1	.2	.3
Gray dogwood	.1	.1	.1	.2	.7	.8	.1	.4	.5
Red-Osier dogwood	.3	2.4	2.7	.6	1.6	2.2	.4	1.9	2.4
Bunchberry	.1	22.5	22.6	.1	6.5	6.6	.1	13.6	13.7
American hazelnut	1.4	6.6	8.1	.7	3.4	4.1	1.1	4.9	6.0
Beaked hazelnut	.8	4.7	5.6	1.0	4.7	5.7	.9	4.7	5.6
Hawthorn sp.	.1	1.2	1.3	.2	2.2	2.4	.2	1.8	1.9
American beech	4.9	32.6	37.5	2.5	27.7	30.3	4.0	29.9	33.8
White ash	1.8	19.0	20.9	2.3	17.6	19.9	2.0	18.2	20.3

Relative Density and Frequency and Importance Values of Lesser Woody Stems[a] by Geographic Unit and Species, New Hampshire, 1983
Continued

Species	Northern Unit			Southern Unit			State total		
	Density	Frequency	Importance value	Density	Frequency	Importance value	Density	Frequency	Importance value
Black ash	.2	2.4	2.5	.2	1.6	1.8	.2	1.9	2.1
Creeping snowberry	.1	2.4	2.4	.1	.7	.7	.1	1.4	1.5
Teaberry	.1	9.7	9.8	.1	25.3	25.3	.1	18.4	18.5
Witchhazel	.3	2.8	3.1	2.8	15.4	18.2	1.3	9.8	11.1
Large leaf holly	.2	.4	.6	.1	.4	.4	.1	.4	.5
Common winterberry	.1	.4	.5	.7	1.3	1.9	.3	.9	1.2
Sheep laurel	.9	3.5	4.4	.6	3.4	4.0	.8	3.5	4.2
Mountain laurel	.1	.1	.1	1.0	2.8	3.8	.4	1.6	2.0
Labrador tea	.1	.4	.6	.1	.1	.1	.1	.2	.3
Common spicebush	.1	.1	.1	.1	.4	.4	.1	.2	.3
Bush honeysuckle	.7	7.4	8.1	.5	1.9	2.4	.6	4.3	5.0
Apple sp.	.1	1.2	1.3	.2	.7	.8	.1	.9	1.0
Partridgeberry	.1	9.4	9.4	.1	22.2	22.3	.1	16.5	16.6
Mountain holly	.1	.4	.5	.2	.7	.9	.1	.6	.7
Eastern hophornbeam	.3	5.1	5.4	.4	5.6	6.0	.3	5.4	5.7
Virginia creeper	.1	.1	.1	.1	1.0	1.0	.1	.6	.6
Ninebark	.1	.1	.1	.1	.4	.4	.1	.2	.3
Sycamore	.1	.1	.1	.1	.4	.4	.1	.2	.3
Balsam poplar	.2	1.2	1.4	.1	.1	.1	.1	.6	.7
Bigtooth aspen	.1	.8	.9	.2	2.2	2.4	.1	1.6	1.7
Quaking aspen	.7	11.3	12.0	1.0	7.7	8.7	.8	9.3	10.1
Cherry sp.	.1	.1	.1	.3	1.0	1.2	.1	.6	.7
Pin cherry	1.6	11.3	12.8	.8	5.9	6.7	1.3	8.3	9.5
Black cherry	1.1	13.6	14.8	2.2	21.3	23.5	1.5	17.9	19.4
Chokecherry	.5	3.9	4.5	.8	3.4	4.2	.6	3.7	4.3
White oak	.1	1.2	1.3	1.3	12.7	14.0	.6	7.6	8.2
Swamp white oak	.1	.1	.1	.1	.4	.4	.1	.2	.3
Scarlet oak	.1	.1	.1	.3	1.3	1.6	.1	.7	.9
Chestnut oak	.1	.1	.1	.2	.7	.9	.1	.4	.5
Northern red oak	2.0	13.2	15.2	3.4	33.6	37.0	2.5	24.6	27.1
Black oak	.1	.4	.5	.6	6.5	7.1	.3	3.8	4.1
Buckthorn	.2	.8	1.0	.5	1.0	1.4	.3	.9	1.2
Azalea sp.	.4	.8	1.2	1.0	1.3	2.3	.6	1.1	1.7
Smooth sumac	.1	.1	.1	.2	1.0	1.1	.1	.6	.7
Staghorn sumac	.1	.8	.9	.1	.7	.8	.1	.7	.8
Poison ivy	.1	.1	.1	.1	4.1	4.1	.1	2.3	2.3
Currants sp.	.3	3.2	3.4	.1	1.6	1.7	.2	2.3	2.5
Rose sp.	.1	.4	.5	.1	1.0	1.1	.1	.7	.8
Rubus sp.	18.5	26.8	45.3	6.2	18.2	24.4	13.7	22.0	35.7
Willow sp.	.2	2.0	2.2	.1	1.0	1.1	.2	1.4	1.6
American elder	.3	3.2	3.4	.2	1.0	1.1	.2	1.9	2.2
Red-berried elder	.4	2.8	3.1	.1	.7	.7	.3	1.6	1.9
American mountain ash	.6	5.9	6.5	.1	.4	.4	.4	2.8	3.2
Spiraea sp.	2.7	9.4	12.0	4.5	12.4	16.8	3.4	11.0	14.4

Relative Density and Frequency and Importance Values of Lesser Woody Stems[a] by Geographic Unit and Species, New Hampshire, 1983
Continued

Species	Northern Unit			Southern Unit			State total		
	Density	Frequency	Importance value	Density	Frequency	Importance value	Density	Frequency	Importance value
American bladdernut	.1	.1	.1	.1	.4	.4	.1	.2	.3
Basswood sp.	.1	.4	.5	.1	1.3	1.4	.1	.9	1.0
American basswood	.1	1.2	1.3	.1	.7	.7	.1	.9	1.0
Elm sp.	.1	.1	.1	.1	1.0	1.1	.1	.6	.6
American elm	.1	2.4	2.5	.3	2.8	3.1	.2	2.6	2.8
Small cranberry	.1	.1	.1	.1	.4	.4	.1	.2	.3
Blueberry sp.	3.0	10.1	13.2	11.8	23.1	34.9	6.4	17.4	23.8
Viburnum sp.	.3	2.0	2.3	.5	2.8	3.3	.4	2.5	2.8
Maple-leaved viburnum	.4	3.2	3.6	1.8	4.7	6.5	1.0	4.0	5.0
Hobblebush viburnum	5.9	26.0	31.9	1.1	4.1	5.1	4.0	13.8	17.8
Wild raisin	.5	3.2	3.6	1.1	6.8	7.9	.7	5.2	5.9
Arrowwood	.1	.1	.1	.8	3.7	4.6	.3	2.1	2.5
Nannyberry	.6	3.5	4.1	.4	2.2	2.6	.5	2.8	3.3
Highbush cranberry	.1	.8	.9	.1	.1	.1	.1	.4	.5
Grape	.1	.4	.5	.1	.1	.1	.1	.2	.3
Unknown vine	.1	.4	.5	.1	.4	.4	.1	.4	.4
Unknown dwarf shrub	.1	1.6	1.7	.1	.7	.7	.1	1.1	1.1
Unknown deciduous shrub	.6	2.8	3.3	1.6	6.2	7.8	1.0	4.7	5.6
Unknown evergreen shrub	.1	.4	.5	.2	.4	.5	.1	.4	.5
Unknown tree	.1	.8	.9	.2	1.0	1.1	.1	.9	1.0

[a] Includes shrub and vine species and tree stems less than 5.0 inches d.b.h.

Metric Equivalent of Units Used in This Report

1 acre = 4,046.86 m^2 or 0.404686 ha
1,000 acres = 404.686 ha
1,000,000 acres = 404,686 ha
1 inch = 2.54 cm or 0.0254
1 foot = 30.48 cm or 0.3048
Breast height = 1.4 above ground level
1 mile = 1.609 km
1 square foot = 929.03 cm^2 or 0.929 m^2
1 square foot per acre basal area =
0.229568 m^2/ha
1 ton = 907.1848 kg
1,000 tons = 907.1848 metric tons

*U.S. GOVERNMENT PRINTING OFFICE:1987-748-076.40018

Brooks, Robert T.; Frieswyk, Thomas S.; Malley, Anne M. 1987. Forest Wildlife Habitat Statistics for New Hampshire--1983. NE-RB-97. Broomall, PA: U.S. Department of Agriculture, Forest Service. Northeastern Forest Experiment Station; 107 p.

A statistical report on the first forest wildlife habitat survey of New Hampshire (1983). Findings are displayed in 58 tables covering forest area, landscape patterns, mast potential, standing dead and cavity trees, and understory woody-stemmed vegetation. Data are presented at county and/or unit and state levels of resolution.

Keywords: Forest habitat survey, inventory, landscape pattern, snags, mast, browse.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

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- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
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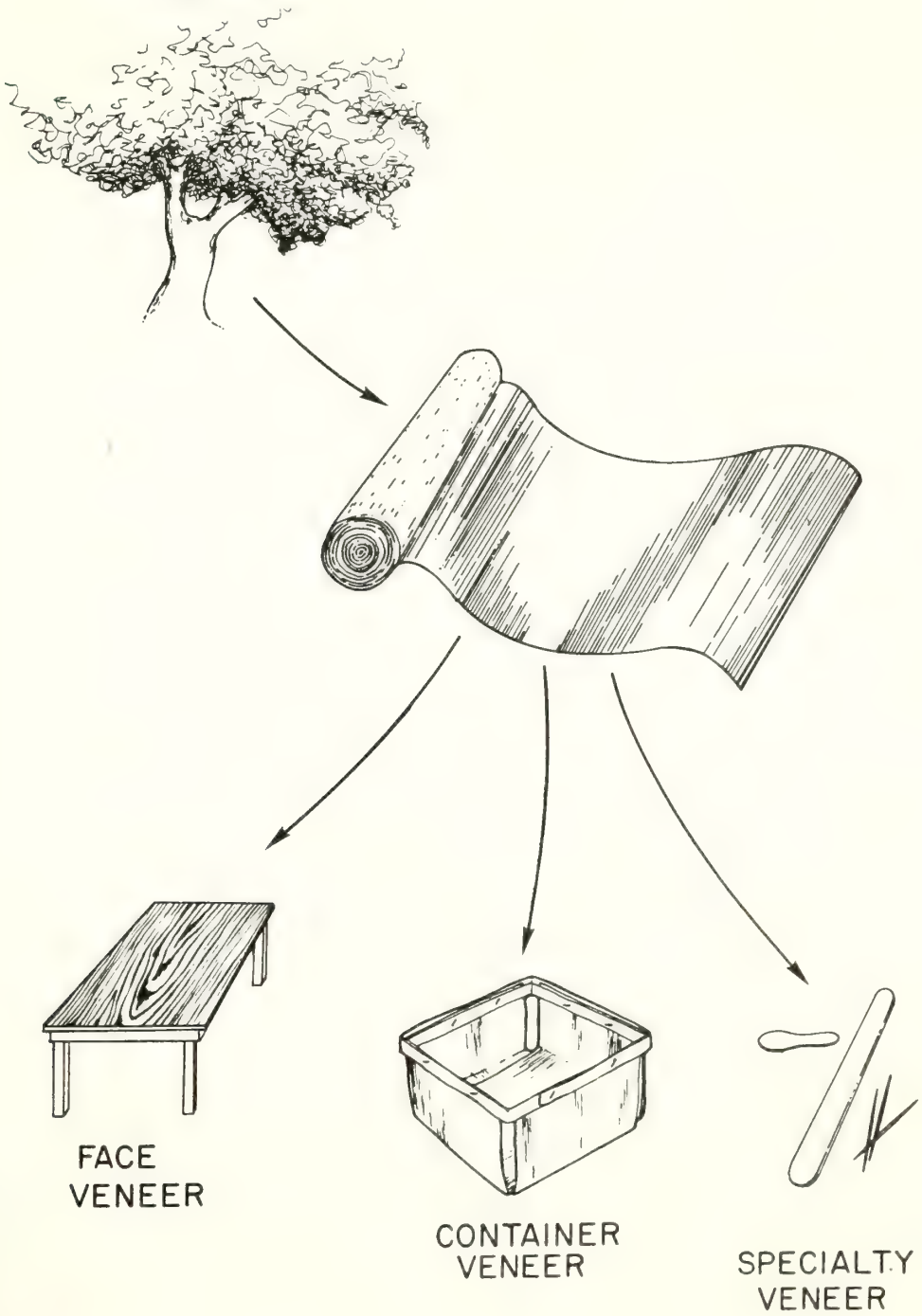
Veneer Log Production and Receipts in the Northeast, 1984

—A Periodic Assessment of Regional Timber Output

Robert L. Nevel, Jr.
Eric H. Wharton



Abstract

During 1984, 187.3 million board feet (816,600 m^3) of veneer logs were harvested from northeastern timberlands. In 1984, 30.5 more million board feet (133,000 m^3) of veneer logs were harvested than in 1980--the second consecutive 19-percent increase over the past two 4-year periods. Most of the veneer logs came from Maine, Maryland, New York, and Pennsylvania. The Northeast's manufacturers of veneer received 153.8 million board feet (670,600 m^3) of veneer logs during 1984, 33.3 million board feet, or 28 percent, more than that received in 1980. The veneer mills in the Northeast generated 14.2 million cubic feet of manufacturing residues in 1984--nearly all of which was used for wood fiber, fuel, and agricultural uses.

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Veneer Log Production and Receipts in the Northeast, 1984

--A Periodic Assessment of Regional Timber Output

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Highlights

The 1984 veneer industry survey in the Northeast showed that since 1980:

* Veneer log production rose 19 percent to over 187 million board feet[1] (816,600 m^3).
* Veneer log receipts at northeastern veneer mills rose 28 percent to nearly 154 million board feet (670,000 m^3).
* Five fewer plants were operating in the Northeast.
* The Northeast continued to grow as a net exporter of veneer logs, exporting more than 26 million board feet (113,800 m^3) more logs than it received from outside the region.

[1]Based on recent timber and utilization surveys conducted by the USDA Forest Service in the Northeast, 1,000 board feet (International 1/4-inch rule) equals 4.36 m^3.

ackground

he U.S. Department of Agriculture, Forest ervice, conducts forest and forest-products ndustry surveys to provide current information n timber and related resources of the Nation. eriodically in the Northeast, production and onsumption of a single timber product are urveyed by the Northeastern Forest Experiment tation to determine the product's importance in elation to the entire timber-products industry n the region. The manufacture of veneer ranks hird in the region, as measured by annual eceipts of industrial timber products, such as awlogs, pulpwood, veneer logs, and other oundwood. Veneer-industry surveys have taken lace every 4 years since 1963 to assess veneer og and bolt harvest and use. These and other valuations of the timber-products industry and he timber resource of the Northeast show change ithin the veneer industry and its resource use.

n 1985, all operating veneer mills that use ogs or bolts in or from the 14 Northeastern tates[2] were contacted for log and bolt eceipts in 1984. The survey was coordinated ith a similar survey in the North-Central egion to avoid duplicate requests and to assess the veneer industry and log situation for a 21-state area in the Northern United States. Information on mill location and log receipts was requested from other neighboring Forest Experiment stations and the Canadian provinces to assure complete coverage. The mills contacted by the Northeastern Forest Experiment Station were mailed questionnaires to complete and return. After two additional requests by mail, nonresponding mills were contacted by telephone by Station personnel. Veneer logs harvested and exported overseas through log brokers or concentrators are difficult to trace accurately and were not included in the survey.

Information and analysis of veneer-log use and the veneer industry are provided on a continuing basis. Those involved with the veneer, veneer log, and timber industries will find the material useful in their evaluations of state and regional timber and log supply, harvest, and use, especially for hardwoods. About one-sixth of the Nation's veneer hardwood logs are harvested and used in the Northeast as compared to less than 2 percent of all veneer logs and less than 1 percent of the softwoods.

This report deals mainly with statistics for 1984, the calendar year of the latest veneer-industry survey; and 1980, the calendar year of the last canvass. For comparison, reference is made to statistics of the earlier regional surveys. Additional related

[2]The name and location of Northeastern veneer ills using logs or bolts are presented in a ist and map at the end of this paper.

information may be available for individual states for intervening years from reports of the Station's statewide forest-products industry surveys.

Veneer Industry Profile

There are three broad classes of veneer manufacturers in the Northeast: (1) container veneer manufacturers; (2) commercial and face veneer mills; and (3) specialty veneer mills. These classes are based on the industries they serve and the products they make. The commercial and face veneer mills produce veneer for the plywood and furniture industries. The container manufacturers fabricate mostly wooden boxes and baskets to ship produce. The specialty veneer manufacturers produce a multitude of miscellaneous items, including beverage stirrers, business cards, spoons, tongue depressors, and toothpicks.

In 1984, 31 active veneer plants were scattered throughout 10 of the Northeastern states. The mills were concentrated most heavily in New England--mostly in south-central Maine and in Vermont. The mills were located near veneer-log sources, product markets, or adequate transportation and favorable labor--considerations that determine the type and location of a plant. Proximity of log sources, inexpensive labor, and product markets are more important to container plants than to manufacturers of commercial and face veneer. The three container plants buy and sell locally in agricultural areas. The manufacture of commercial and face veneer is more exacting in its raw material requirements, and the 19 manufacturers are willing to pay more to get the logs and to make and distribute products. The nine specialty veneer plants are located near the required species and major transportation.

There were 38 fewer active veneer plants in the Northeast in 1984 than in 1963 (Fig. 1). Two-thirds of the drop resulted from the closure of container plants; the balance of the decline was primarily due to closings of commercial veneer plants. The number of specialty veneer plants has remained relatively constant throughout the period.

There were 36 active veneer mills in the Northeast during the previous 1980 industry survey. Since then, the total number of active plants dropped to 31. Eight veneer plants closed including four commercial mills, two specialty mills, and two container mills; and two commercial mills opened. An existing mill in Ohio was recognized to be operating in 1984 and was included in the total for the year.

The Container Veneer Industry

In 1963, nearly 30 container veneer plants were scattered from Ohio to Vermont. After 20 years only one-tenth as many were located only in Ohio and New Jersey. Sixteen plants closed between 1963 and 1972; four more closed by 1976; another closed by 1980; and two more closed by 1984.

Over the years, declining use of wooden containers and a lack of skilled labor forced the closing of most container veneer plants. Demand has dropped with the replacement of family farms by agribusinesses and the increased cost of wooden containers. Today, large-scale agribusinesses use automated harvesting and transporting equipment and corrugated shipping containers, and roadside produce retailers prefer to use paper bags and plastic goods to minimize packaging costs. The high cost of labor and material to produce wooden containers has made them uneconomical for use by fruit and vegetable producers. The assembly of wooden containers is labor intensive, requiring highly skilled workers who are difficult to replace.

The Commercial and Face Veneer Industry

The number of active domestic commerical and face veneer mills rose in the mid-1960's along with plywood consumption in the United States. There were 36 of these plants in the Northeast in 1968. Since 1968, only one mill has produced softwood plywood. The rest produced hardwood veneer and plywood for the furniture, cabinet, and related industries. The number of commercial and face mills then dropped throughout the 1970's despite relative stable consumption. By 1980 there were only 20 mills, and one less by 1984.

The closing of the mills was related to activity surrounding the hardwood plywood market. From 1960 to 1968, hardwood plywood imports increased slightly every year to meet increasing demand with little or no detriment to domestic shipments. From 1968 to 1980, domestic consumption of hardwood plywood averaged 5.6 billion square feet per year,[3] but increased foreign dominance of the hardwood plywood market hurt domestic shipments and the commercial veneer industry in the Northeast.

According to the Forest Products Review and the U.S. Bureau of the Census, domestic consumption and hardwood plywood imports more than quadrupled between 1960 and 1972, but domestic shipments only doubled. In 1972, when domestic demand for hardwood plywood peaked at 8.1 billion square feet, imports made up over three-fourths of the annual consumption and the number of northeastern hardwood mills dropped to 25. Foreign manufacturers penetrated and dominated the United States hardwood plywood

[3] One square foot equals .00929 m^2.

Characteristics of veneer mills in the Northeast, by class of mill, 1984:

Characteristics	Class of veneer plant		
	Commercial and face	Container	Specialty
Volume of log receipts	6.0 million board feet per plant	0.4 million board feet per plant	4.2 million board feet per plant
Major species	Yellow birch, red oak, yellow pine, and mixed softwoods	Beech, hard and soft maple, sycamore, and yellow-poplar	Aspen, white birch, butternut, hard and soft maple
Size of log procurement area	From 3- to 14-state area	From consuming or neighboring state	From 3- to 5-state area
Plant location	Evenly scattered throughout Northeast	Atlantic Coastal Plain or bordering Great Lakes	Mostly Maine
Product market areas	Eastern population and Southeastern furniture industry	Local agricultural areas	Nationwide
Number of mills	19	3	9

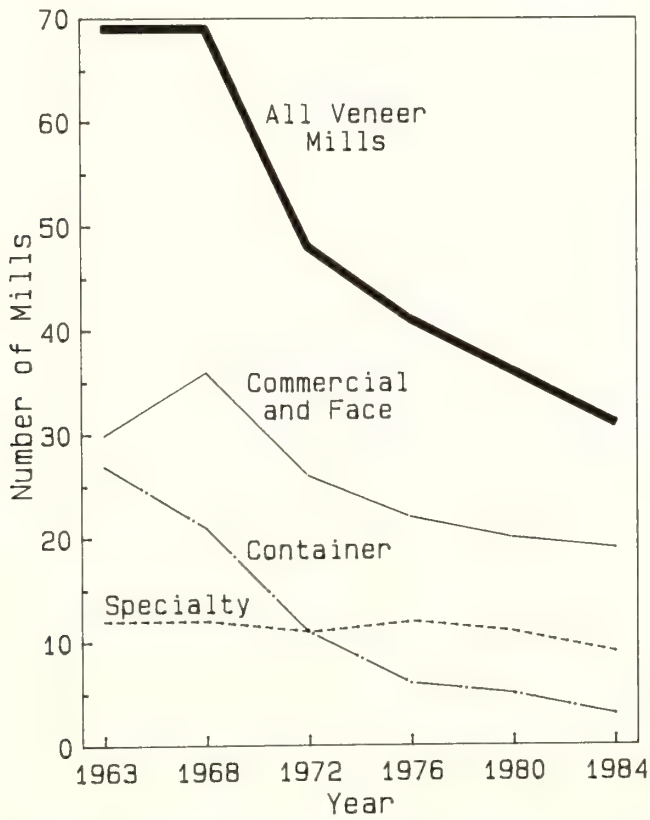

Figure 1.--Number of veneer mills operating in the Northeast, by class of plant, for selected years.

market to bring the closing of many domestic plants and the relocation of manufacturing facilities overseas. The recent long-term worldwide economic slowdown further impacted domestic hardwood plywood consumption. By 1980, the demand for hardwood plywood dropped to less than 3-1/2 billion square feet, imports dropped significantly to account for about two-thirds of the national consumption, and six more hardwood mills closed. With an improved national economy, domestic hardwood plywood consumption rose by 14 percent to 3.8 billion square feet by 1984. However, domestic mills were unable to meet demand, and production remained rather flat. Between 1980 and 1984, imported plywood shipments had risen by 24 percent to account for nearly three-fourths of the domestic demand, and a new mill had opened in New York.

As the economy continues to improve, the commercial and face veneer industry in the Northeast likely will continue to produce larger volumes of hardwood and softwood veneers and plywood. However, the industry will still be facing increasing costs, decreased log quality, and competition from manufacturers of alternative and imported products.

The Specialty Veneer Industry

The specialty veneer mills provide stability to the wood-using industry. The species they use and the products they make seldom change. Although these mills numbered around a dozen between 1963 and 1980, only nine operated in 1984. They still account for about three-tenths of all the veneer mills in the Northeast. In 1984, six of these veneer mills were located in central and southern Maine; the rest were located within 400 miles in New Hampshire, Vermont, and New York. For the most part, white birch and hard maple bolts are used to make such items as toothpicks, ice cream spoons, tongue depressors, and stirrers. One specialty mill used a variety of species to make parts for a manufacturer of large industrial reels.

Veneer Log Harvest Continued to Rise--Plant Receipts Rose Even More Significantly

Harvest Jumped Another 19 Percent

In 1984, Northeastern timber harvesters supplied veneer mills in the region, neighboring states, and Canada with over 187 million board feet of logs and bolts. The veneer log and bolt harvest was up by 19 percent since 1980 and up by over 52 percent since the recent low of 123 million board feet in 1972 (Fig. 2). The rise since 1980 follows a similar jump for the 1976-80 period. The harvest was higher since 1980 in 8 of the 14 northeastern states, including Rhode Island. Historically, veneer logs have never been produced in Rhode Island. Individual gains for the states ranged from 15 percent in Kentucky to well over 100 percent in New York. The percentage of production decreased slightly in Maryland and significantly in Delaware and

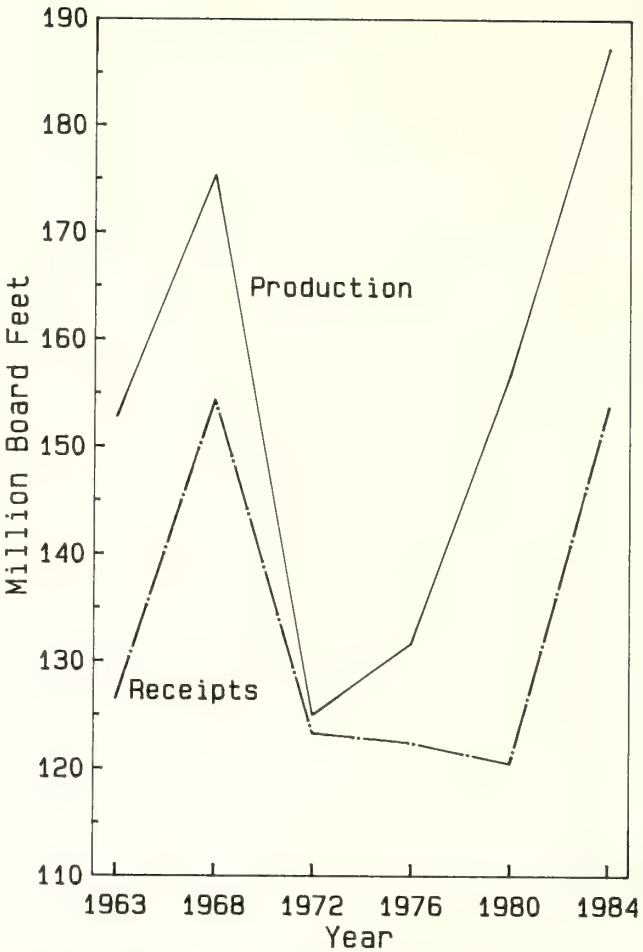

Figure 2.--Veneer log production and receipts in the Northeast for selected years.

New Jersey. Together, Delaware and New Jersey produced less than 2 million board feet in 1984. Maine, Maryland, New York, and Pennsylvania continued to have the largest individual harvests. Each of these states produced at least 26 million board feet of veneer logs in 1984. Their harvests totaled 142.3 million board feet for over three-fourths of the veneer logs produced in the Northeast (Fig. 3).

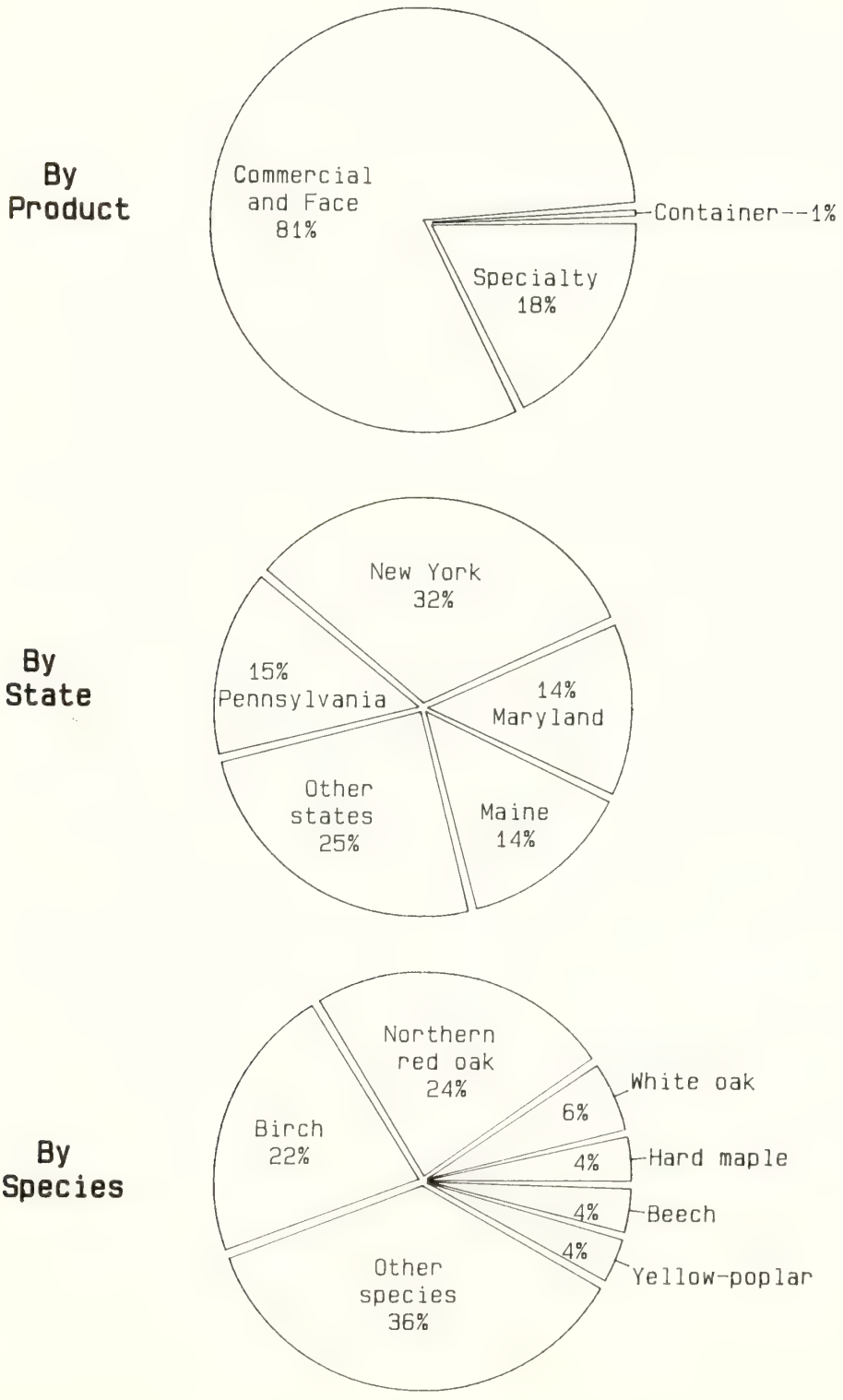

Figure 3.--Veneer log production in percent, 1984.

During the last 16 years, most of the veneer log production in the Northeast has gone to producers of commercial and face veneer (Fig. 4). Over 81 percent--152 million board feet--of the region's veneer logs went to these plants in 1984 (Figs. 3 and 4). The volume of logs cut for these plants was up 23 percent over 1980 when nearly 124 million board feet, or 79 percent, of the total northeastern veneer log harvest went to these mills. In 1984, nearly 34 million board feet, or 18 percent, of the total harvest went to specialty veneer mills. Less than 1 percent went to container manufacturers.

Harvest Characteristics

Between 1976 and 1984, the harvest of veneer logs for the commercial and face veneer mills differed from the previous 8 years. From 1968 through 1976, veneer log production for these mills decreased. Since 1976, the harvest for these mills rose significantly. Most of the rise between 1976 and 1980 resulted from increased shipments from Maine and New York to Canadian firms near the international border. Since 1980, shipments to Canada continued to rise, along with increased demand in Pennsylvania and New York. During the recent period, a new veneer mill was built in each state to make commercial and face veneer.

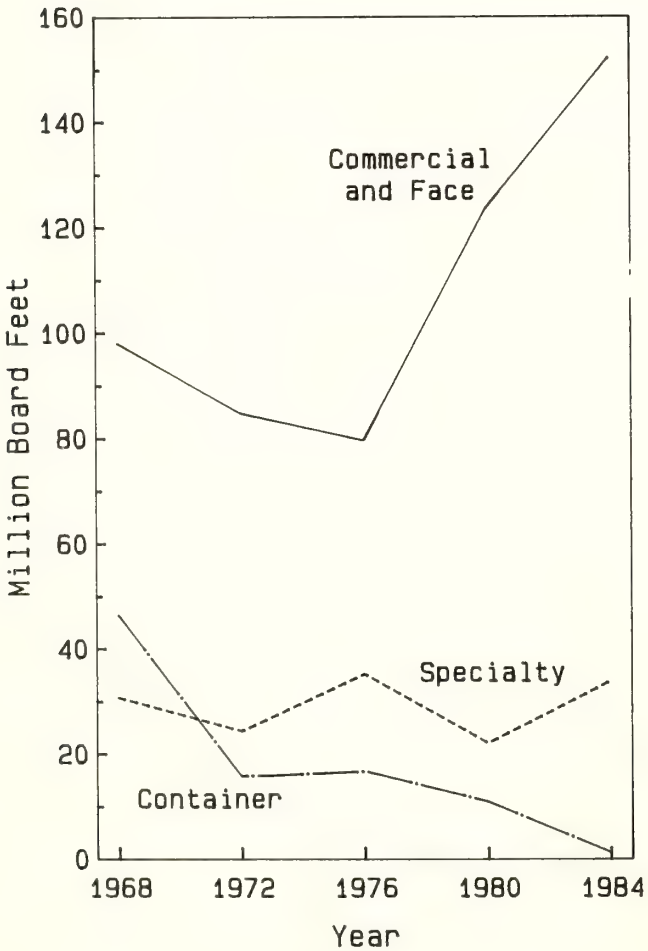

Figure 4.--Production of veneer logs in the Northeast, by class of plant, for selected years.

The harvests of veneer logs and bolts for specialty mills have risen and fallen over the years since 1968. As changes in the economy and in the demand and competition for specialty veneer products have fluctuated, so have the harvests of roundwood to make these products. After reaching a new low in 1980, log production for the specialty veneer mills rose again in 1984. Overall, the specialty veneer-log harvest has decreased slightly over the years. Though similar, harvest highs and lows between 1976 and 1984 are slightly lower than those of the prior periods.

The harvests of veneer logs for container mills have continued to decline over the 16-year period since 1968. Few veneer logs and bolts were used to make containers in 1984. Few mills remain as the industry continues to lose markets to imported and substitute products.

In 1984, New York led the Northeast in veneer logs harvested from a state's timberlands. The 60.2 million board feet represented a 145-percent increase since 1980. This was twice the volume of any other state and nearly one-third of the total for the Northeast (Fig. 3). About 98 percent of New York's veneer logs were sent to manufacturers of commercial and face veneer. Most of the increased harvest went to a softwood plywood mill recently constructed within the state and Canadian hardwood face veneer mills.

Until recent years, more veneer logs have been produced and used in Maine than in any other state. Except for 1980, over half of the veneer logs harvested annually in the state since 1968 went to its specialty veneer mills. Most of the balance went to its commercial and face veneer mills. In 1980, 54 percent of the state's logs were harvested to make commercial and face vene[illegible]en a softwood plywood mill opened in New Brunswick. With the mill's closure and the demand for New York logs, Maine quickly lost its dominance in the Northeast to rank second.

In 1984, 26.9 million board feet, or about 14 percent, of the region's total veneer-log harvest were harvested in Maine. Nearly two-thirds of Maine's veneer-log harvest was white birch logs sent to specialty mills in the state. About 14 percent of the harvest consisted of yellow-birch logs sent to Vermont's hardwood veneer mills.

In 1984, birch, red oak, white oak, beech, hard maple, and yellow-poplar were the preferred hardwood species accounting for 64 percent of the harvest in the Northeast (Fig. 3).

Softwoods made up nearly one-fourth of the total production. Most of the softwood production was from Maryland's southern pine and New York's eastern white pine forests.

Hickory, red oak, and black walnut registered production gains of 38 percent or more between 1980 and 1984. The largest volume gains were shown in red oak and birch, which accounted for nearly half of the harvest. Production for each of these two species increased significantly, reaching over 41 million board feet for each species. The softwood veneer log harvest rose 21 percent in the last 4 years to nearly 46 million board feet. The largest declines in volume occurred with beech, soft maple, and white oak.

In 1984, red oak surpassed birch as the northeastern species harvested most to make veneer (Fig. 5). Birch had been declining in usage to red oak since 1963 when red oak accounted for only 7 percent of the veneer log harvest and birch made up 35 percent. Red oak has become the preferred species to make face veneer.

The proportion of veneer made from hard maple and yellow-poplar has also decreased over the last 21 years. The use of hard maple has given way to other species, such as beech and white oak, which are less competitive with the solid wood products industry. Demand for yellow-poplar veneer logs has dropped off with the decreased production of wooden containers.

Mill Receipts Rose More Than The Harvest

Veneer plants in the Northeast received 153.8 million board feet of veneer logs in 1984. This volume was about 33-1/3 million board feet, or 28 percent, more than the amount received in 1980. Veneer log receipts dropped in 3 and rose in 7 of the 11 northeastern states with operating veneer mills. New York registered the largest gain--increasing more than threefold, or about 27 million board feet--to account for nearly one-fourth of the region's total receipts. Over half of the logs received were harvested from softwoods, mostly white pine, growing in the state. Most of the hardwood logs received came from beech, hard maple, and yellow birch trees within the state for use by the state's face and specialty mills.

Interregional and Interstate Shipments

The Northeast continues to be a supplier of high-quality veneer logs to mills outside and inside the region. Since 1963, regional exports have exceeded imports--more veneer logs have gone out of the Northeast than have been shipped into it for conversion. This surplus decreased from 1963 to 1976. Net exports dropped from 26 million board feet in 1963 to 21 million board feet in 1968. The surplus of outshipments nearly reached equilibrium at 1.7 million board feet in 1972 when demand for veneer logs was

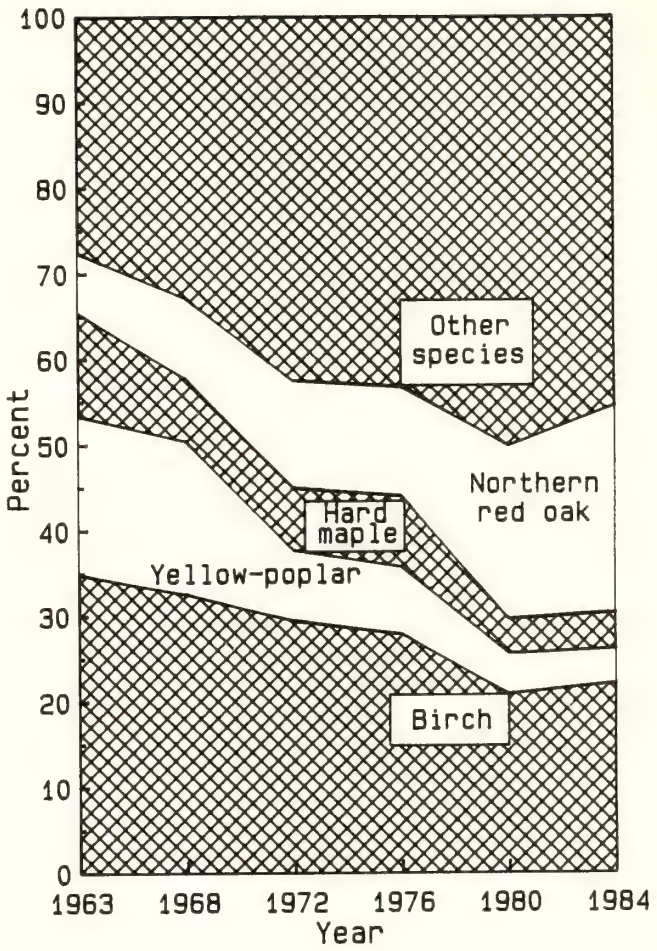

Figure 5.--Species mix of veneer log production in the Northeast for selected years.

high. Then, in 1976, during a weak market for hardwood logs, extraregional shipments exceeded imports by 9 million board feet. By 1980, exports exceeded imports by more than 36 million board feet for a surplus of 23 percent.

Between 1980 and 1984, there was a large drop in net exports and a change in species mix exported. In 1984, net exports of veneer logs from the Northeast fell to just over 26 million board feet, for a 14-percent surplus. The region's mills used more logs from outside the region, while the volume of logs exported dropped slightly.

The species mix of exported veneer logs also changed between 1980 and 1984. Most of the 1980 export surplus came from shipments of softwood veneer logs out of the region. By 1984, the New Brunswick plywood mill that had used large volumes of spruce and fir from Maine had closed. The 1984 export surplus resulted from increased shipments of hardwood logs out of the region, particularly from Pennsylvania and New York to Canada. Red oak, white oak, and cherry were the preferred hardwoods.

Among the Northeastern states with operating mills, Kentucky, New Hampshire, New York, and Pennsylvania exported greater volumes of veneer logs than they imported in 1984. With the loss of its Canadian market, Maine went from a large net exporter to a net importer.

In both 1980 and 1984, twice as many veneer logs were shipped out of the Northeast as in 1976. In 1980, the 58.7 million board feet of exported logs made up 37 percent of the year's veneer log production. By 1984, the volume shipped outside the region dropped by 4 percent to 56.2 million board feet, accounting for 30 percent of the total harvest.

Although most veneer logs are high-value timber products likely to be shipped considerable distances, most Northeastern mills are able to rely on the local and regional timber resource to meet their needs. In 1984, 123.7 million board feet or 80 percent, of the veneer logs received by mills in the Northeast came from states within the region. Nearly two-thirds of the mill receipts were harvested in the state where the mills were located. Over 89 million board feet, or 48 percent, of the veneer logs harvested in the region were shipped out of the state in which they were cut. Nearly four-tenths of the out-of-state shipments remained within the region.

Nearly All Manufacturing Residues Used

The manufacture of veneer from logs and bolts generates residues in the form of bark, clippings, and cores. The value and utility of these residues continue to rise. The wood industry and other industrial facilities in the Northeast have been using the wood residues from veneer mills and other manufacturing plants as dependable and readily available sources of raw material for pulp and energy. Environmental concerns have discouraged wood-product manufacturers from burning or dumping their residues, and have encouraged the plants to use or market this material.

The veneer mills in the Northeast generated 14.2 million cubic feet of manufacturing residues in 1984. Almost 7 million cubic feet were in the form of coarse woody material large enough to be made into wood chips. Nearly 5 million cubic feet were fine woody material too small for chipping, but valuable as fuel. About 2-1/2 million cubic feet were bark.

Both the use of veneer manufacturing residues and the use of these residues for industrial fuel have increased tremendously in recent years. Nearly all of the residues were used in 1984 (Fig. 6). Most of these residues were used by the veneer plants for boiler fuel. Very little of any type residue was burned to heat homes. Nearly two-fifths of the coarse wood residues, very little of the fine wood residues, and none of the bark were used to make pulp and other fiber products. One percent or less of each type residue went unused. Most of the unused material was burned, piled, or buried.

Definition of Terms

Harvest

Harvest. The aggregate volume of timber produced for industrial or consumer uses.

Industrial timber harvest. Total production of round timber for conversion into wood products, except fuelwood.

Timber products output. Includes roundwood (round timber) products harvested from growing stock on commercial forest land; from other sources, such as cull trees, salvable dead trees, limbs and tops, and saplings; from trees on noncommercial and nonforest lands; and from manufacturing plant byproducts.

Manufacture

Primary wood-manufacturing plant. A plant that converts roundwood (round timber) to wood products such as woodpulp, lumber, veneer, cooperage, and dimension.

Roundwood products. Logs, bolts, and other round timber generated from harvesting trees for industrial or consumer use.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum standards of diameter, length, and defect.

Veneer log production (harvest). The manufacture of roundwood (round timber) products, such as logs and bolts, generated from harvesting trees for conversion into veneer products.

Veneer log receipts. Roundwood (round timber) products, such as logs and bolts, received by veneer mills for conversion into veneer products.

Residues

Manufacturing plant residues. Bark and woody materials that are generated when round timber (roundwood) is converted into wood products; includes slabs, edgings, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and pulp screenings.

Plant byproducts. Wood products such as pulp chips, recycled from manufacturing plant residues.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered from plant byproducts.

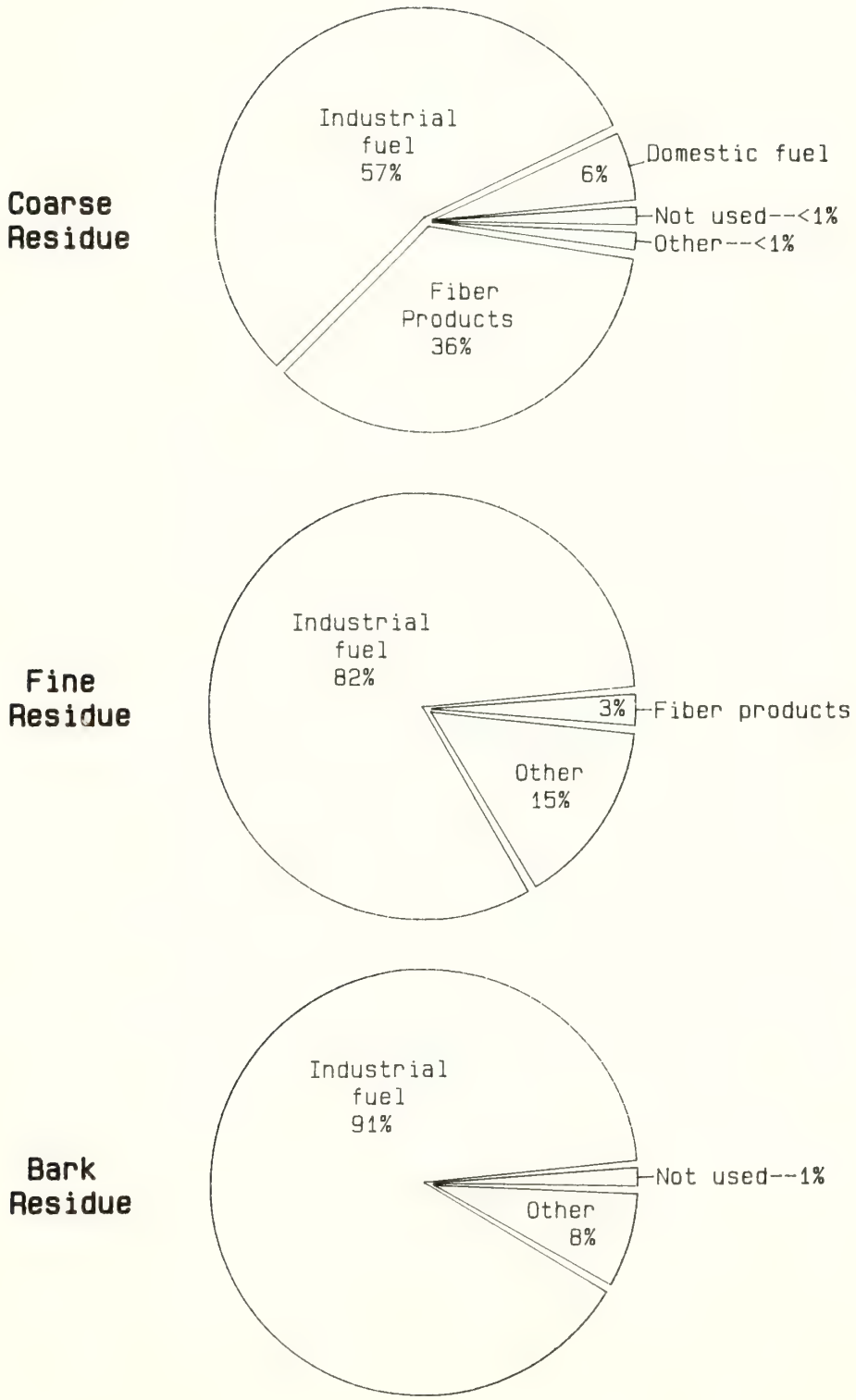

Figure 6.--Disposition of veneer plant residues in percent, 1984.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Species

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Softwoods. Coniferous trees, usually evergreen, with needles or scale-like leaves.

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Table 1.-Veneer log production in the Northeast, by state, 1980 and 1984

State	Production		
	1980	1984	Change
	Million board feet[a]		Percent
Connecticut	0.7	1.3	+86
Delaware	5.4	1.7	-69
Kentucky	6.0	6.9	+15
Maine	39.9	26.9	-33
Maryland	28.3	26.7	- 6
Massachusetts	1.4	2.5	+79
New Hampshire	4.8	6.9	+44
New Jersey	.3	.1	-67
New York	24.6	60.2	b
Ohio	7.7	9.1	+18
Pennsylvania	20.0	28.5	+42
Rhode Island	-	c	b
Vermont	10.2	12.6	+24
West Virginia	7.5	3.9	-48
All states	156.8	187.3	+19

[a]International ¼-inch rule.
[b]Greater than 100 percent increase.
[c]Less than 100,000 board feet.

Table 2.-Species composition of veneer log harvest in the Northeast, 1980 and 1984

Species	1980		1984		Change
	Million board feet[a]	Percent	Million board feet[a]	Percent	Percent
Ash	5.6	3.6	3.5	1.9	-38
Basswood	.6	.4	.6	.3	0
Beech	7.6	4.8	6.7	3.6	-12
Birch	32.7	20.9	41.5	22.2	+27
Cherry	5.9	3.8	6.7	3.6	+14
Elm	.4	.3	.1	b	-75
Hickory	.8	.5	1.4	.7	+75
Maple, hard	6.2	4.0	7.9	4.2	+27
Maple, soft	2.0	1.3	1.6	.8	-20
Oak, red	31.9	20.3	45.3	24.2	+42
Oak, white	13.7	8.7	11.6	6.2	-15
Sycamore	.5	.3	.4	.2	-20
Walnut, black	1.6	1.0	2.2	1.2	+38
Yellow-poplar	7.3	4.7	7.5	4.0	+ 3
Other hardwoods[c]	2.3	1.4	4.8	2.6	d
Total hardwoods	119.1	76.0	141.8	75.7	+19
Total softwoods[e]	37.7	24.0	45.5	24.3	+21
All species	156.8	100.0	187.3	100.0	+19

[a]International ¼-inch rule.
[b]Less than 0.1 percent.
[c]Includes aspen, chesnut, cottonwood, hackberry, pecan, tupelo, and other miscellaneous hardwoods.
[d]Greater than 100 percent increase.
[e]Includes eastern white pine, red spruce, and southern yellow pines.

Table 3.-Veneer log receipts in the Northeast, by state, 1980 and 1984

State[a]	Receipts		
	1980	1984	Change
	Million board feet[b]		Percent
Kentucky	3.0	2.8	-7
Maine	27.0	31.5	+17
Maryland/West Virginia[c]	52.0	36.9	-29
New Hampshire/Vermont[c]	17.4	27.8	+60
New Jersey/New York[c]	10.5	36.9	d
Ohio	6.6	12.0	+82
Pennsylvania	4.0	5.9	+48
All states	120.5	153.8	+28

[a]States with no operating veneer mills are omitted.
[b]International ¼-inch rule.
[c]States paired to avoid disclosure for individual mills.
[d]Greater than 100 percent increase.

Table 4.-Production of veneer logs in the Northeast, by states and receiving mill classes, 1984

(Million board feet)[a]

State	Class of receiving veneer mill			All classes
	Commercial and face	Container	Specialty	
Connecticut	1.3	-	-	1.3
Delaware	1.7	-	-	1.7
Kentucky	6.9	-	-	6.9
Maine	6.9	-	20.0	26.9
Maryland	26.7	-	-	26.7
Massachusetts	2.2	-	.3	2.5
New Hampshire	2.1	-	4.8	6.9
New Jersey	b	0.1	-	.1
New York	59.0	-	1.2	60.2
Ohio	7.9	1.2	-	9.1
Pennsylvania	28.5	-	-	28.5
Rhode Island	b	-	-	b
Vermont	5.0	-	7.6	12.6
West Virginia	3.9	-	-	3.9
All states	152.1	1.3	33.9	187.3

[a]International ¼-inch rule.
[b]Less than 100,000 board feet.

Table 5.-Receipts of veneer logs in the Northeast, by states and receiving mill classes, 1984

(Million board feet)[a]

State[b]	Class of receiving veneer mill		All classes
	Commercial and face	Container and specialty	
Kentucky	2.8	-	2.8
Maine	2.5	29.0	31.5
Maryland/West Virginia[c]	36.9	-	36.9
New Hampshire/Vermont[c]	20.0	7.8	27.8
New Jersey/New York[c]	35.5	1.4	36.9
Ohio	10.8	1.2	12.0
Pennsylvania	5.9	-	5.9
All states	114.4	39.4	153.8

[a]International ¼-inch rule.
[b]States with no operating veneer mills are omitted.
[c]States paired to avoid disclosure for individual mills.

Table 6.-Production and destination of shipment of Northeastern veneer logs, by states, 1984

(In millions of board feet)[a]

State	Cut and retained in state	Out-shipments		Total production
		To other states[b]	To other Northeastern states	
Connecticut	-	1.3	1.2	1.3
Delaware	-	1.7	1.6	1.7
Kentucky	1.0	5.9	.4	6.9
Maine	20.8	6.1	4.6	26.9
Maryland	21.5	5.2	1.8	26.7
Massachusetts	-	2.5	1.8	2.5
New Hampshire	1.2	5.7	5.6	6.9
New Jersey	.1	c	-	.1
New York	34.4	25.8	8.7	60.2
Ohio	4.6	4.5	.3	9.1
Pennsylvania	4.5	24.0	3.2	28.5
Rhode Island	-	c	-	c
Vermont	9.0	3.6	3.5	12.6
West Virginia	1.0	2.9	.3	3.9
All states	98.1	89.2	33.0	187.3

[a]International ¼-inch rule.
[b]Includes shipments to Canada and other states outside the region.
[c]Less than 100,000 board feet.

Table 7.-Extraregional recipients of veneer logs from the Northeast, 1984

(Million board feet)[a]

State of Province	Volume received
Indiana	8.7
Michigan	1.2
Missouri	.3
North Carolina	9.6
New Brunswick, Canada	.4
Ontario, Canada	23.8
Quebec, Canada	8.9
Tennessee	.8
Virginia	2.5
All states and provinces	56.2

[a]International ¼-inch rule.

Table 8.-Consumption and origin of shipment of veneer logs for the Northeast, by states, 1984

(In millions of board feet)[a]

State	Cut and retained in state	In-shipments[b]		Total receipts (apparent consumption)
		To other states[c]	To other Northeastern states[b]	
Kentucky	1.0	1.8	0.5	2.8
Maine	20.8	10.7	-	31.5
Maryland/West Virginia	22.5	14.4	2.7	36.9
New Hampshire/Vermont	10.2	17.6	17.3	27.8
New Jersey/New York	34.5	2.4	2.4	36.9
Ohio	4.6	7.4	1.5	12.0
Pennsylvania	4.5	1.4	1.2	5.9
All states	98.1	55.7	25.6	153.8

[a]International ¼-inch rule.
[b]In-shipments reported to two states are to avoid disclosure for individual mills and includes logs shipped between the two states as well as other states.
[c]Includes shipments from Canada and other states outside the region.

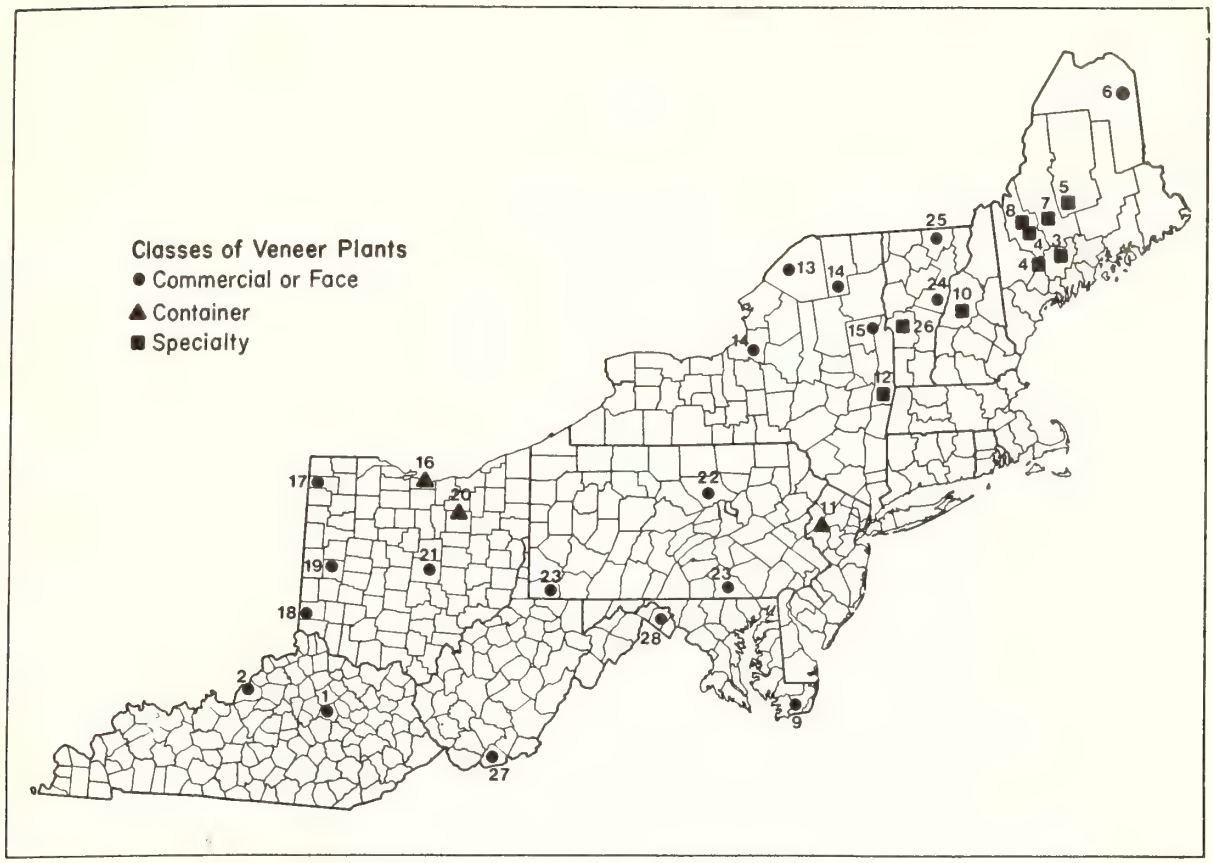
Table 9.-Disposition of veneer plant residues in the Northeast by states and type of residue and use, 1984

(In thousands of cubic feet)

Class of residue and type of use	Kentucky	Maine	Maryland	New Hampshire	New Jersey	New York	Ohio	Pennsyl-vania	Vermont	West Virginia	All states
Coarse[a]											
Fiber[b]	83	599	1,343	-	-	75	94	-	242	-	2,436
Industrial fuel	79	759	133	-	6	1,514	339	55	836	166	3,887
Domestic fuel	-	20	-	90	-	58	100	23	84	9	384
Agricultural and other uses	-	-	-	-	-	-	-	45	-	-	45
Total used	162	1,378	1,476	90	6	1,647	533	123	1,162	175	6,752
Total unused	-	-	-	-	-	-	-	45	-	-	45
Fine[c]											
Fiber	-	143	-	-	-	-	-	-	-	-	143
Industrial fuel	57	859	1,073	59	4	1,187	383	111	233	67	4,033
Domestic fuel	-	-	-	-	-	12	-	-	-	-	12
Agricultural[d] and other uses	61	-	-	-	-	-	4	11	614	61	751
Total used	118	1,002	1,073	59	4	1,199	387	122	847	128	4,939
Total unused	-	-	-	7	-	-	-	-	-	-	7
Bark											
Industrial fuel	10	495	535	33	2	514	129	44	421	60	2,243
Domestic fuel	-	-	-	-	-	10	-	-	-	-	10
Agricultural and other uses	49	-	-	-	-	73	51	17	-	3	193
Total used	59	495	535	33	2	597	180	61	421	63	2,446
Total unused	-	-	6	-	-	-	13	-	-	-	19
All residues											
Fiber	83	742	1,343	-	-	75	94	-	242	-	2,579
Industrial fuel	146	2,113	1,741	92	12	3,215	851	210	1,490	293	10,163
Domestic fuel	-	20	-	90	-	80	100	23	84	9	406
Agricultural and other uses	110	-	-	-	-	73	55	73	614	64	989
Total used	339	2,875	3,084	182	12	3,443	1,100	306	2,430	366	14,137
Total unused	-	-	6	7	-	-	13	45	-	-	71

[a] Includes veneer cores and trimmings suitable for chipping.
[b] Includes woodpulp and composite products.
[c] Includes clipping, shavings, and rounding waste unsuitable for chipping.
[d] Includes livestock bedding and farm and horticultural mulch.

Veneer Plants in the Northeast--1984



Kentucky:

1. The Freeman Corp., Winchester
2. Wood Mosaic Corp., Louisville

Maine:

3. Diamond Match Co., Oakland
4. Forster Manufacturing Co., Inc.
   (Plants in E. Wilton and Strong)
5. Hardwood Products Co., Guilford
6. Columbia Plywood Corp., Presque Isle
7. Solon Manufacturing Co., Solon
8. Strong Wood Products Inc., Strong

Maryland:

9. Chesapeake Plywood Inc., Pocomoke City

New Hampshire:

10. Plymouth Manufacturing Co., Plymouth

New Jersey:

11. Califon Basket Co., Califon

New York:

12. W. J. Cowee Co., Berlin
13. Riverside Veneer Co., Inc., Heuvelton
14. Rutland Plywood Corp.
    (Plants in Bernhards Bay and Tupper Lake)
15. Whitehall Plywood Corp., Whitehall

Ohio:

16. Berlin Fruit Box Co., Berlin Heights
17. Dimension Veneers, Edon
18. Fairfield Veneer Co., Fairfield
19. Hartzell Hardwoods Inc., Piqua
20. McIntire Basket Co., Creston
21. Universal Veneer, Newark

Pennsylvania:

22. Keystone Veneers Inc., Williamsport
23. Weyerhaeuser Co.
    (Plants in Jefferson and New Freedom)

Vermont:

24. Bradford Veneer and Panel Co., Bradford
25. Columbia Plywood Corp., Newport
26. Rutland Plywood Corp., Rutland

West Virginia:

27. The Dean Co., Princeton
28. Erath Veneer Corp., Martinsburg

Nevel, Robert L., Jr.; Wharton, Eric H. 1987. **Veneer log production and receipts in the Northeast, 1984--A periodic assessment of regional timber output.** NE-RB-98. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 17 p.

Evaluates regional timber output based on a canvass of the veneer plants in the Northeast and contains statistics for 1984 on the veneer-log production and receipts by states and species, log shipments between states and regions, and the disposition of manufacturing residues. Trends in production and an outlook for the industry are presented along with a list and map of veneer plants in the Northeast.

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Keywords: Timber output, veneer logs, Northeast, primary manufacturing residues.

Headquarters of the Northeastern Forest Experiment Station are in Broomall, Pa. Field laboratories are maintained at:

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- Berea, Kentucky, in cooperation with Berea College.
- Burlington, Vermont, in cooperation with the University of Vermont.
- Delaware, Ohio.
- Durham, New Hampshire, in cooperation with the University of New Hampshire.
- Hamden, Connecticut, in cooperation with Yale University.
- Morgantown, West Virginia, in cooperation with West Virginia University, Morgantown.
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